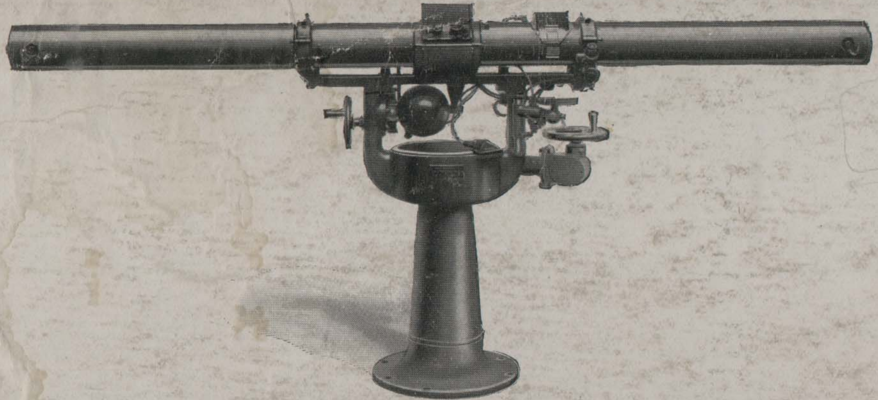
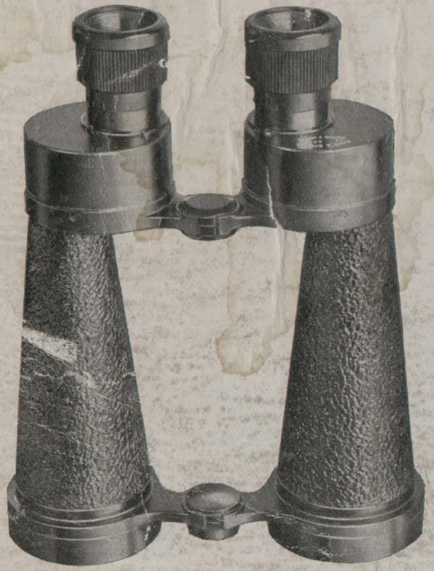
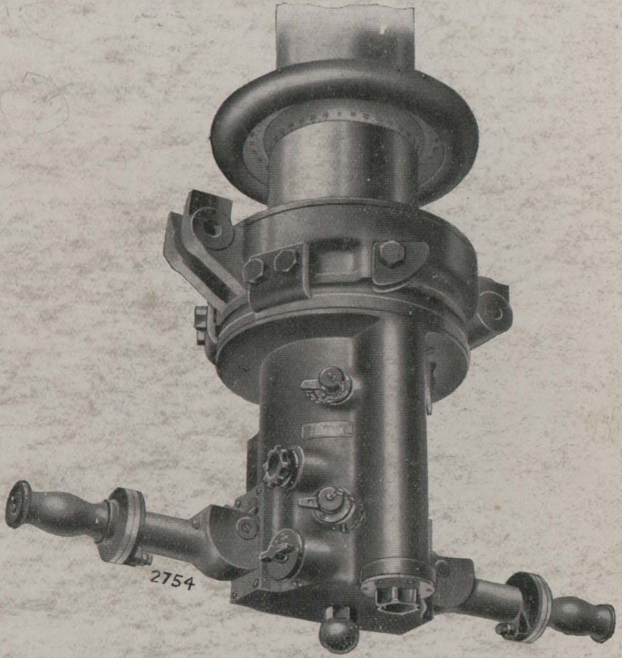


Low or High Angle Rangefinder with Simple Height Gear.



7 × 50 mm. PRISMATIC BINOCULAR

ADOPTED BY THE ADMIRALTY
FOR GENERAL USE IN THE
BRITISH NAVY



Lower Portion of Submarine Periscope with Range and Inclination Estimator.

RANGEFINDERS
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SUBMARINE
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FIRE CONTROL GEAR,
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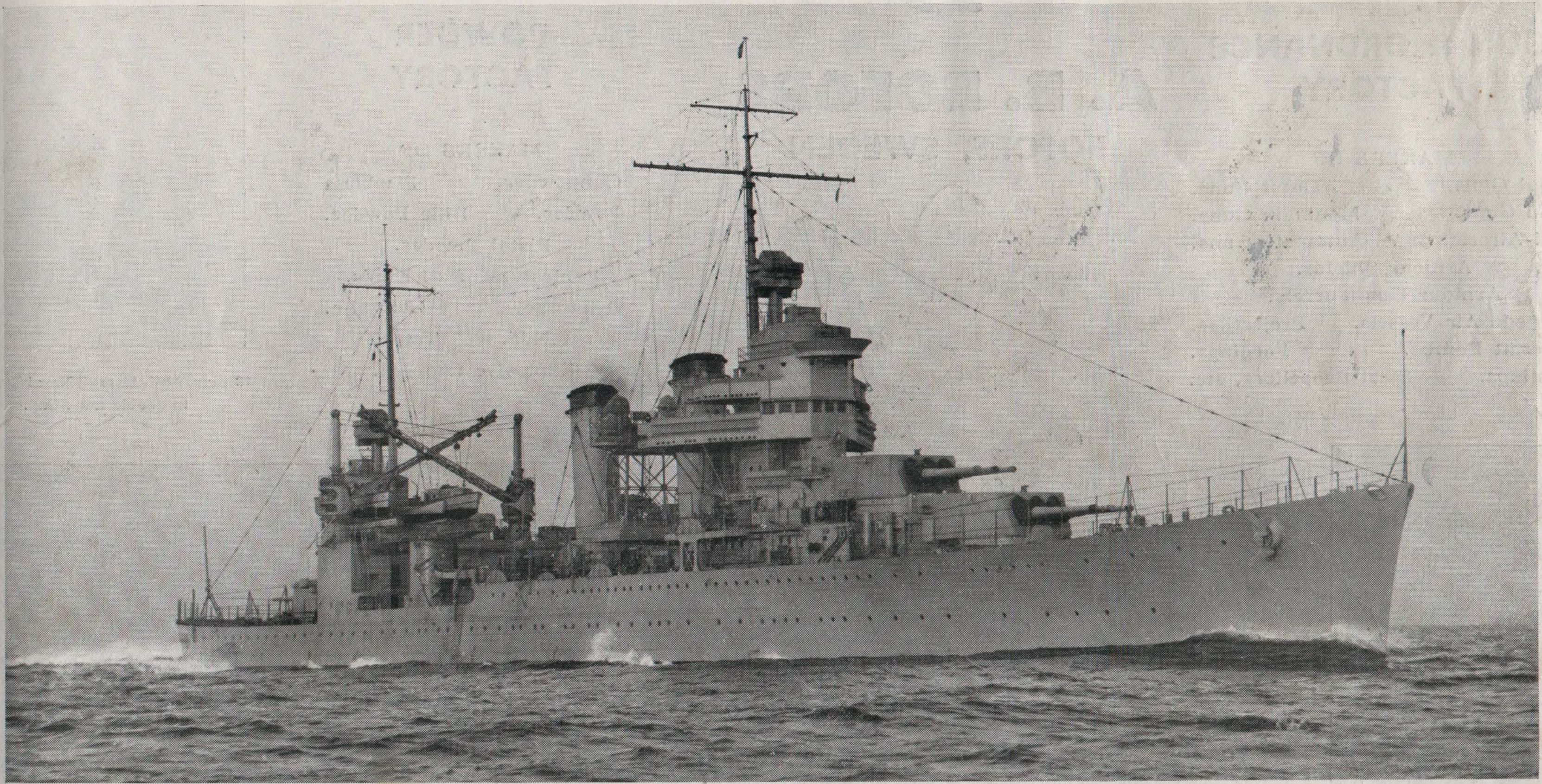

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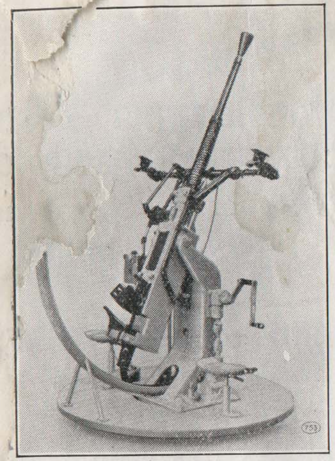
# BOFORS ORDNANCE WORKS



25 mm. A.A. Automatic Gun L/64.

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Anti-Aircraft Guns. Automatic Guns.
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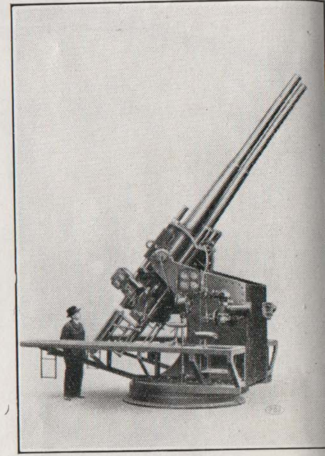
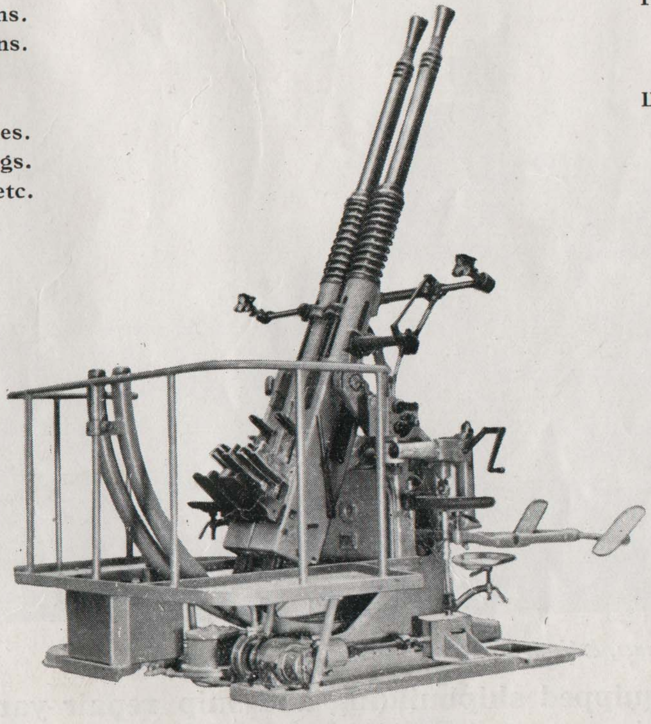
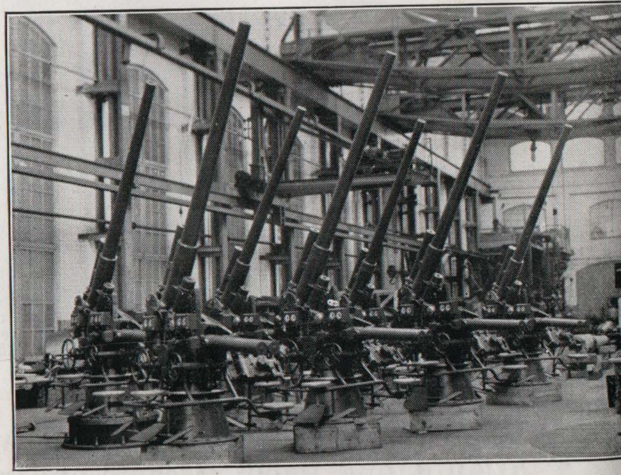


10·5 cm. Anti-Aircraft Naval Gun L/5
in double mounting.

12 cm. Naval Gun L/50
in double mounting.



40 mm. A.A. Automatic Gun L/60
in double mounting.



8 cm. Anti-Aircraft Guns L/50.

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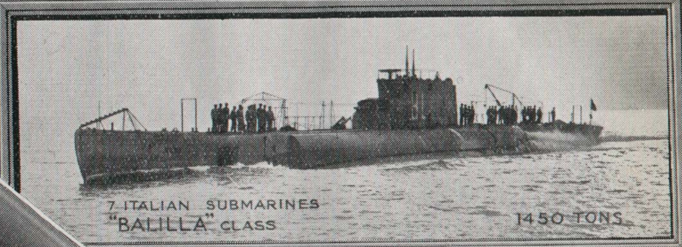
GREEK FLOTILLA-LEADERS
"COUNTOURIOTIS"-"HYDRA"-"SPETSAI"-"PSARA" 1550 TONS 41·6 KNOTS



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"BALILLA" CLASS 1450 TONS

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WARSHIPS OF ALL TYPE
MERCHANT SHIPS OF ALL SIZE
GUNS OF ALL CALIBRES
AMMUNITIONS
MARINE ENGINES
PARSONS TURBINES
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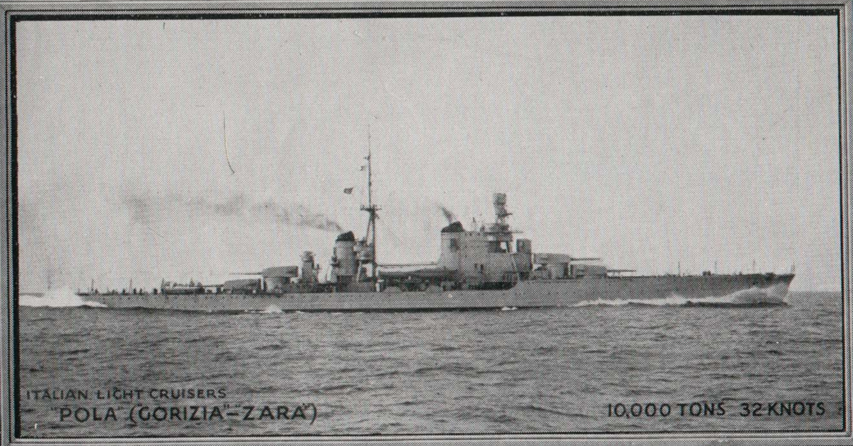

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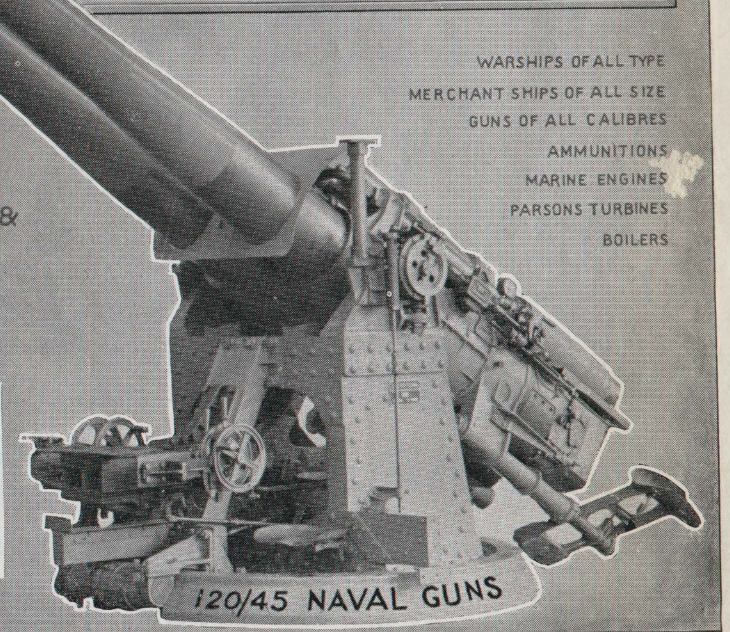
| MERCHANT SHIPS . | 617,546 Reg. Tons |
| MARINE ENGINES . | 3,400,000 H.P. |
| ARTILLERY . . | over 8,100 guns |



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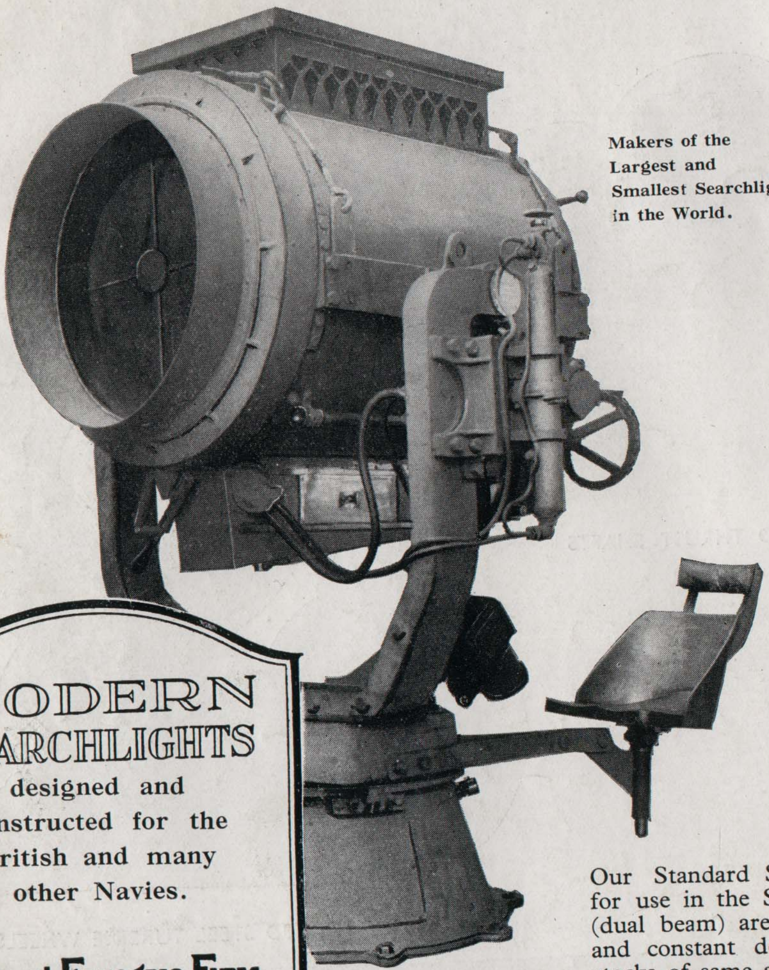

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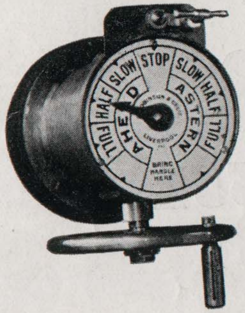

FULL
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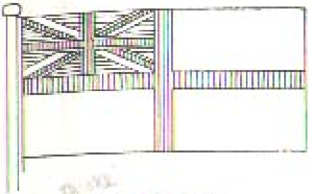
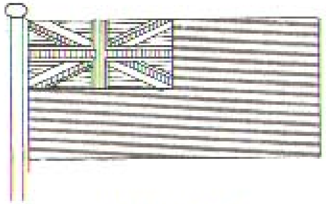
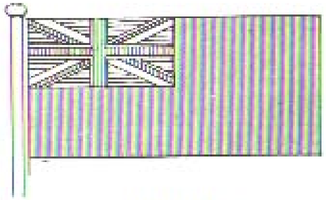
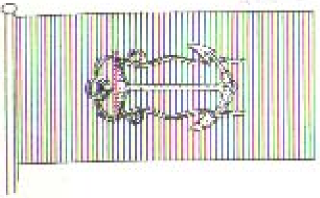
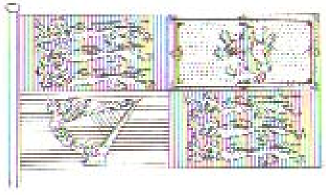
# BRITISH ROYAL NAVY.

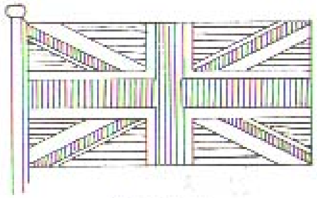

White Ensign

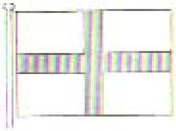

Blue Ensign

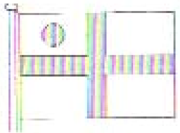

Red Ensign

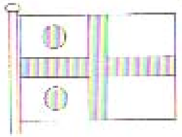

Admiralty Flag

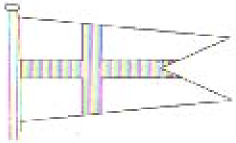

Royal Standard

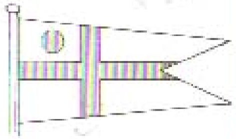

Union Flag


Admiral


Vice-Admiral


Rear-Admiral


Commodore,
Senior Officer
(at yard arm)


Commodore,
2nd Class

## Colour of Ships.

Warships in Home Waters, dark grey; in Mediterranean America and West Indies, light grey, except submarines, very dark grey. Cruisers, Sloops, etc., on China Station, white hulls, grey upperworks. Sloops in East Indies and Red Sea, and Cruisers on East Indies, Station, white with light grey upperworks (and in some cases, yellow funnels). Sloops on America and West Indies, New Zealand and Africa Stations, grey all over. Surveying Vessels have white hulls with yellow funnels. All Destroyers (but no Leaders) have their Pendant Numbers on bows and across sterns. Submarines have their Class Letter and Numbers painted on sides of Conning Tower, and in case of those with names on China Station, distinctive letters.

## Recent Construction.

*Programme.*

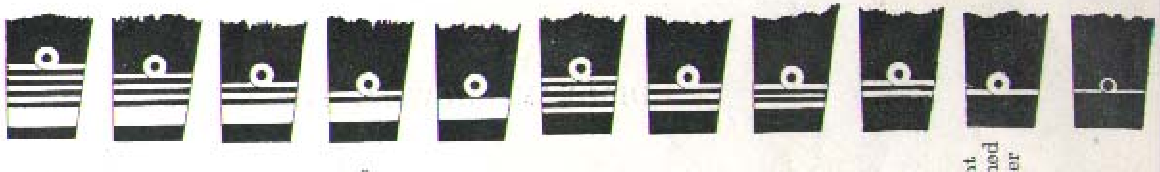
1934. 4 Cruisers, 1 Aircraft Carrier, 1 Flotilla Leader, 8 Destroyers, 6 Sloops, 3 Submarines, 1 Netlayer, 1 Surveying Vessel, 1 Trawler, 1 Boom Working Vessel, 1 Tender.

1935. 3 Cruisers, 1 Flotilla Leader, 15 Destroyers, 6 Sloops, 3 Submarines, 1 Submarine Depot Ship, 2 Surveying Vessels, 20 Trawlers, 1 Mining Tender, 6 Torpedo Boats.

1936. 2 Battleships, 2 Aircraft Carriers, 7 Cruisers, 1 Flotilla Leader, 17 Destroyers, 6 Sloops, 8 Submarines, 1 Gunboat, 2 Surveying Vessels, 2 Trawlers, 2 Tenders, 7 Torpedo Boats, 2 Fleet Tugs.

1937. 3 Battleships, 2 Aircraft Carriers, 7 Cruisers, 16 Destroyers, 6 Submarines, 2 Depot Ships, 2 Escort Vessels, 4 Minesweepers, 3 Patrol Vessels, 2 Surveying Vessels, 2 Gunboats, 10 Torpedo Boats, 6 Boom Working Vessels, 2 Tenders, 2 Tugs.

## Uniforms.



Relative Ranks, Non-Executive Branches.

Engineer Officers have same as above, with purple between stripes.

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|---|---|---|---|---|---|---|---|
| Medical | " | " | " | " | scarlet | " | " |
| Dental | " | " | " | " | orange | " | " |
| Accountant | " | " | " | " | white | " | " |
| Instructor | " | " | " | " | light blue | " | " |
| Shipwright | " | " | " | " | silver grey | " | " |
| Wardmaster | " | " | " | " | maroon | " | " |
| Electrical | " | " | " | " | dark green | " | " |
| Ordnance | " | " | " | " | dark blue | " | " |

## Navy Estimates and Personnel.

| | | | |
|---|---|---|---|
| (1934) £56,550,000. | (1935) £64,900,000. | (1936) £81,289,000. | (1937) £105,065,000. |
| Personnel: 92,338. | Personnel: 97,982. | Personnel: 101,154. | Personnel: 112,000. |

## Board of Admiralty (Nov. 1937).

*First Lord*: The Rt. Hon. A. Duff Cooper, D.S.O., M.P.

*First Sea Lord and Chief of Naval Staff*: Admiral of the Fleet Lord Chatfield, G.C.B., K.C.M.G., C.V.O.

*Second Sea Lord*: Admiral Sir Martin Dunbar-Nasmith, V.C., K.C.B.

*Third Sea Lord and Controller*: Vice-Admiral Sir Reginald Henderson, K.C.B.

*Fourth Sea Lord*: Rear-Admiral Geoffrey S. Arbuthnot, D.S.O.

*Deputy Chief of the Naval Staff*: Vice-Admiral Sir William James, K.C.B.

*Assistant Chief of the Naval Staff* (Air): Rear-Admiral J. H. D. Cunningham, C.B., M.V.O.

*Civil Lord*: Colonel J. J. Llewellin, O.B.E., M.C., T.D., M.P.

*Parliamentary and Financial Secretary*: Geoffrey Shakespeare, Esq., M.P.

*Permanent Secretary*: Sir Archibald Carter, K.C.I.E., C.B.

## Committee of Imperial Defence.

*President*: The Lord President of the Council.

*Members*: H. M. Secretaries of State for War, Air, Colonies, India; The First Lord of Admiralty; The First Sea Lord and Chief of Naval Staff; Chief of the Imperial General Staff; Chief of the Air Staff.

Also representatives of H.M. Treasury and other Government Departments are called in, as requisite.

## Director of Naval Construction.

S. V. Goodall, Esq., C.B., O.B.E.

## Mercantile Marine.

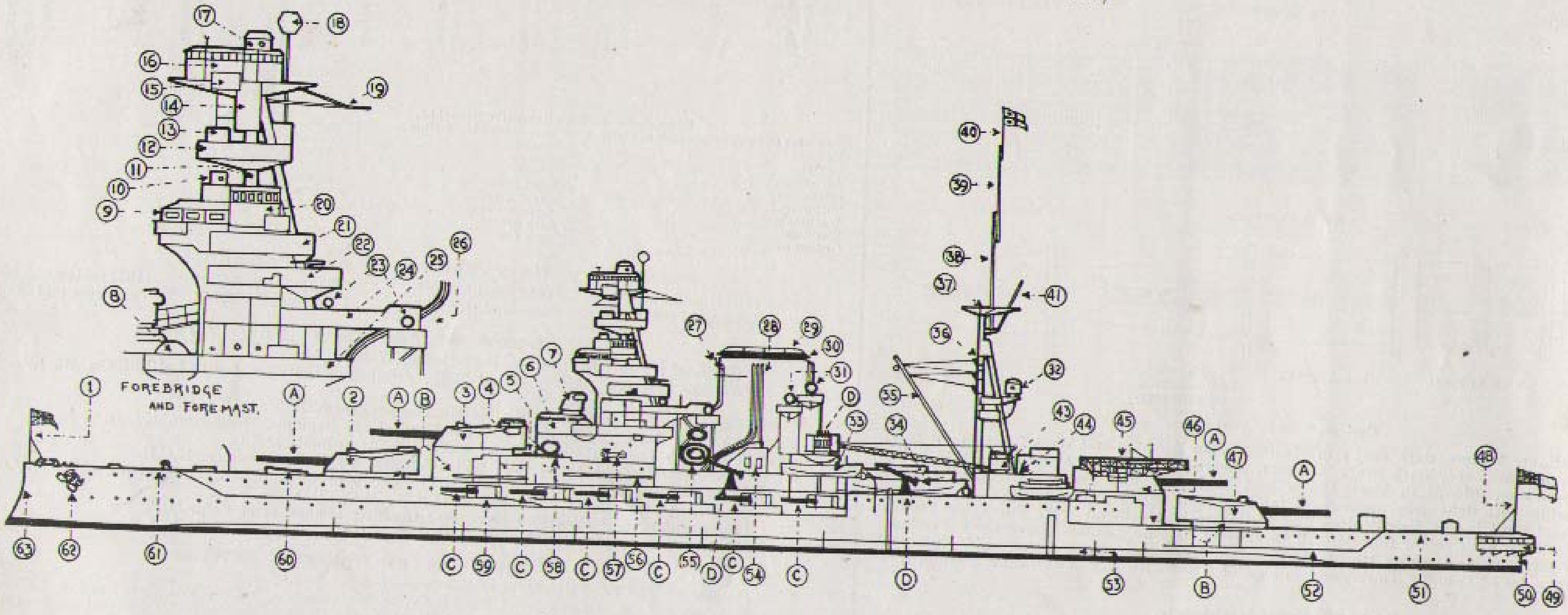
(From "Lloyd's Register," 1937.)

Total for whole of British Empire, 9,711 vessels of 20,629,509 gross tonnage.

диаграмма

## DIAGRAM SHOWING THE OUTSTANDING FEATURES OF A BRITISH BATTLESHIP.

(H.M.S. BARHAM, OF QUEEN ELIZABETH TYPE.)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(FOR KEY TO VARIOUS NUMBERED POINTS, SEE OPPOSITE.)

## KEY TO DIAGRAM OPPOSITE.

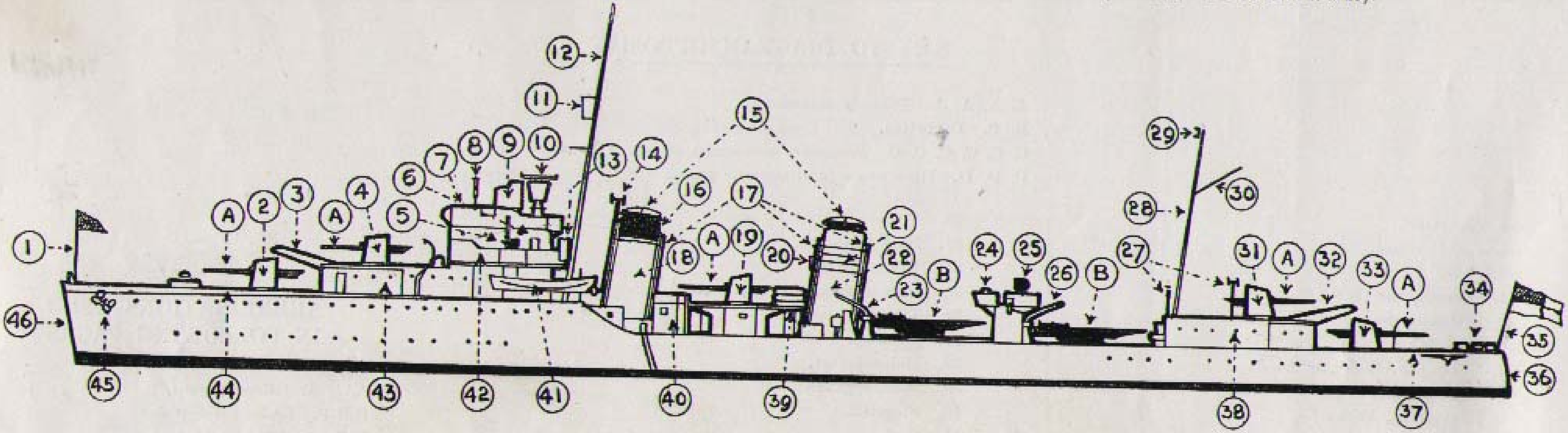
A, A, A, A. Primary armament.
B, B. Barbettes.
C, C, C, C, C, C. Secondary armament of 6-inch guns.
D, D, D. High angle (anti-aircraft) guns.

1. Jackstaff.
2. "A" turret. } башня (А, Б)
3. "B" turret.
4. Rangefinder (R.F.).
5. Saluting guns.
6. Conning tower (C.T.).
7. Main rangefinder, in hood.
8. Multiple Lewis gun mount.
9. Navigating bridge.
10. Control.
11. Tripod foremast.
12. Lower control top.
13. Director tower.
14. Access to platform.
15. Platform.
16. Upper control top.
17. Tower.
18. Frame aerial for directional wireless.
19. Yard.
20. Charthouse.
21. Compass platform.
22. Bridge (in a flagship, Admiral's bridge).
23. Signalling searchlights (S.L.).
24. Flag deck or signal bridge.
25. Platform.
26. Trunk of funnel.
27. Syren brackets.
28. Steam pipes (actually, safety valve uptakes).
29. Caging.
30. Funnel cap.
31. Main searchlights.
32. Tower.
33. Boat in davits.
34. Boom boats.
35. Main derrick (for boats, etc.).
36. Tripod mainmast.
37. Maintop.
38. Maintopmast.
39. Maintopgallantmast.
40. Flagstaff.
41. Gaff.
43. Crane for aircraft.
44. After shelter deck.
45. Catapult.
46. "X" turret.
47. "Y" turret.
48. Ensign staff.
49. Sternwalk.
50. Stern.
51. Quarterdeck (Q.D.).
52. Main deck.
53. Bulges.
54. Workshop, etc.
55. Floats.
56. Boat boom.
57. Paravane.
58. Forward shelter deck.
59. Breakwater.
60. do.
61. Forecastle (F.X.)
62. Anchor in hawse pipe.
63. Bow.

## ABBREVIATIONS USED IN FOLLOWING PAGES

AA. Anti-aircraft guns.
B.H.P. Brake horse power.
Boilers: D.E., double-ended.
,, S.E., single-ended.
C.T. Conning tower.
D.C. Depth charge.
Dir. Con. Director controlled.
I.H.P. Indicated horse power.
K.C. Krupp cemented steel.
Length pp., between perpendiculars.
,, o.a., over all.
,, w.l., waterline.
M.G. Machine guns.
mm. Millimetres.
pdr. Pounder.
Q.D. Quarterdeck.
S.H.P. Shaft horse power.
S.L. Searchlight.
T.T. Torpedo tubes.

## OUTSTANDING FEATURES OF A BRITISH FLOTILLA LEADER (H.M.S. FAULKNOR).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A
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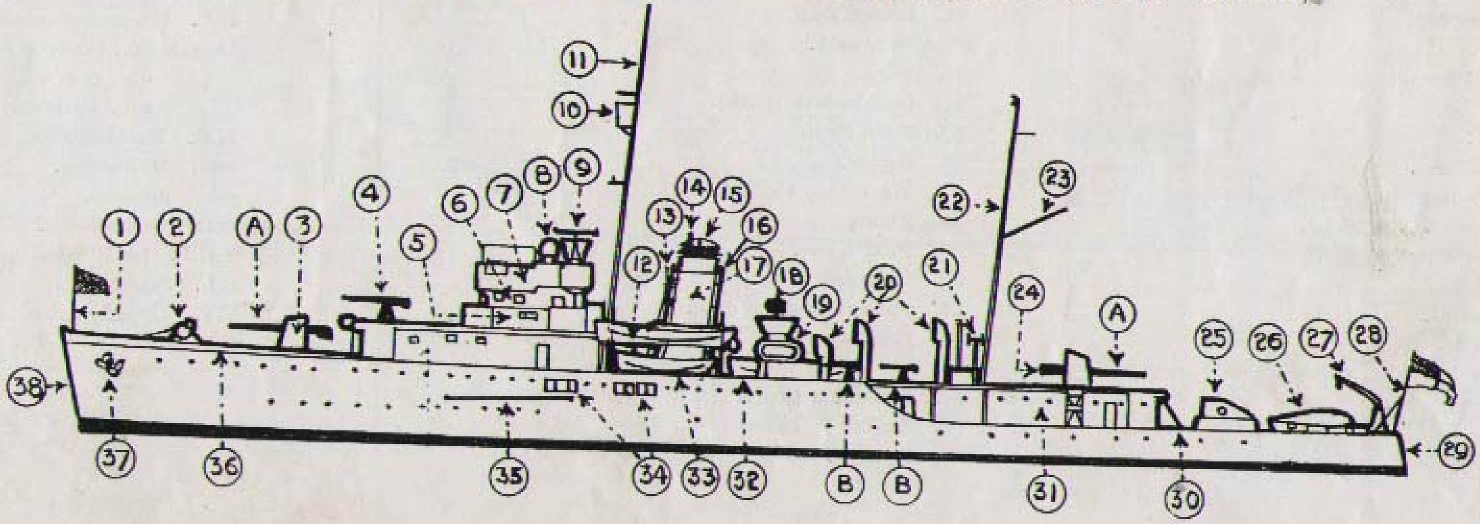
## OUTSTANDING FEATURES OF A BRITISH SLOOP (H.M.S. LEITH).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(FOR KEY TO VARIOUS NUMBERED PARTS, SEE OPPOSITE).

## KEY TO DIAGRAM OF FLOTILLA LEADER (H.M.S. FAULKNOR).

A. A. A. A. A. 4·7 inch guns (in shields)    B. B. Torpedo tubes (quadruple mounts)

1. Jackstaff.
2. No. 1 gun.
3. Blast screen.
4. No. 2 gun (superfiring).
5. Multi-machine gun.
6. Charthouse.
7. Navigating bridge.
8. Semaphore.
9. Control tower.
10. Rangefinder (R.F.).
11. Crow's nest (C.N.).
12. Foremast.
13. Flag rack.
14. Galley pipe.
15. Caps and caging.
16. Black top (indicating Flotilla Leader).
17. Steam pipes (safety valve uptakes).
18. Forefunnel.
19. No. 3 gun (on platform).
20. Syren brackets.
21. Funnel bands (indicating Flotilla).
22. After funnel.
23. Torpedo davit (port).
24. Compass on platform.
25. Searchlight (S.L.) on platform.
26. Torpedo davit (starboard).
27. Galley pipes.
28. Mainmast.
29. Navigation light.
30. Gaff.
31. No. 4 gun (superfiring).
32. Blast screen.
33. No. 5 gun.
34. Depth charges (D.C.).
35. Ensign staff.
36. Stern.
37. Quarterdeck (Q.D.).
38. After superstructure.
39. Floats.
40. Engineers' store.
41. Boats (in davits, port and starboard).
42. Signal bridge.
43. Forward superstructure.
44. Forecastle.
45. Anchor (in hawse pipe).
46. Bow (stem).

## KEY TO DIAGRAM OF SLOOP (H.M.S. LEITH).

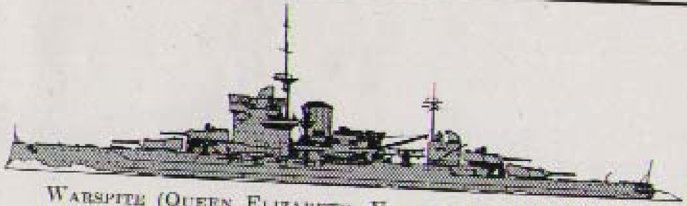
A. A. 4·7 inch guns (in shields).    B. B. 3 pounder (saluting guns).

1. Jackstaff.
2. Windlass.
3. No. 1 gun.
4. 3 inch anti-aircraft (A.A.) gun (superfiring).
5. Signal deck.
6. Wheelhouse.
7. Navigating bridge.
8. Control.
9. Rangefinder (R.F.).
10. Crow's nest (C.N.).
11. Foremast.
12. Boats (in davits, port and starboard).
13. Syren brackets.
14. Galley pipe.
15. Cap and caging.
16. Steampipes (safety valve uptakes).
17. Funnel.
18. Searchlight (S.L.) on platform.
19. Float.
20. Ventilators (cowls).
21. Galley pipes.
22. Mainmast.
23. Gaff.
24. No. 2 gun.
25. Minesweeping winch.
26. High speed mine sweeps.
27. Davits (for sweeping gear).
28. Ensign staff.
29. Stern.
30. Quarterdeck (Q.D.).
31. After shelter deck.
32. Motor launch (in davits to starboard).
33. Boat.
34. Ventilation ports.
35. Boat boom.
36. Forecastle.
37. Anchor in hawse pipe.
38. Bow (stem).

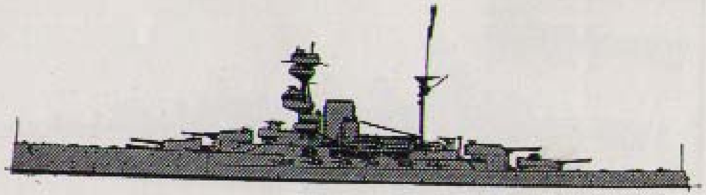
# SUMMARY OF NAVAL FORCES

Dec. 31st, 1937

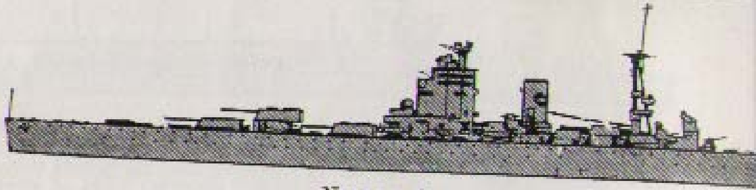
| *Class* | *Building and Projected* | *Built* | [illegible] 1/40 [illegible] |
|---|---|---|---|
| ***12+5 Battleships.*** Vanguard | | | |
| King George V | 5 | — | 4 |
| Nelson | — | 2 | 2 |
| Royal Sovereign | — | 5 | (3) |
| Warspite | — | 5 | (3) |
| ***3 Battle Cruisers.*** | | | |
| Hood | — | 1 | — |
| Renown | — | 2 | 1 |
| ***15 Cruisers (Heavy).*** | | | |
| York | — | 2 | — |
| Norfolk | — | 2 | 1 |
| London | — | 4 | 4 |
| Kent | — | 7 | 4 |
| ***43+17 Cruisers (Light).*** | | | |
| Fiji | 5 | — | |
| Edinburgh | 2 | — | |
| Southampton | 3 | 5 | |
| Amphion | — | 3 | |
| Dido | 7 | — | |
| Arethusa | — | 4 | |
| Leander | — | 5 | |
| Hawkins | — | 3 | |
| Emerald | — | 2 | |
| Danae | — | 8 | |
| Carlisle | — | 5 | |
| Ceres | — | 5 | |
| Caledon | — | 3 | |
| Adelaide | — | 1 | |
| ***1 Cruiser-Minelayer.*** | | | |
| Adventure | — | 1 | |
| ***5+5 Aircraft Carriers.*** | | | |
| Illustrious Colossus & Majestic | 4 | — | 6 |
| Ark Royal | 1 | — | — |
| Courageous | — | 2 | — |
| Furious | — | 1 | — |
| Eagle | — | 1 | — |
| Hermes | — | 1 | — |
| ***3 Training Aircraft Carriers and Seaplane Carriers.*** | | | |
| Argus | — | 1 | |
| Albatross | — | 1 | |
| Pegasus | — | 1 | |
| ***19+3 Flotilla Leaders.*** | | | |
| Jervis | 3 | — | |
| Grenville | — | 3 | |
| Exmouth | — | 2 | |
| Keith | — | 3 | |
| Codrington | — | 1 | |
| Scott | — | 7 | |
| Shakespeare | — | 3 | |
| ***143+37 Destroyers.*** | | | |
| "Tribal" | 16 | — | |
| Javelin | 21 | — | |
| Intrepid | — | 8 | |
| Hero | — | 8 | |
| Greyhound | — | 8 | |
| Fearless | — | 8 | |
| Eclipse | — | 8 | |
| Defender | — | 8 | |
| Crusader | — | 4 | |
| Beagle | — | 8 | |
| Acasta | — | 8 | |
| Skeena | — | 2 | |
| Amazon | — | 2 | |
| "V" and "W" | — | 59 | |
| "S" | — | 10 | |
| "R" | — | 2 | |
| ***52+18 Submarines.*** | | | |
| Triton | 12 | — | |
| Porpoise | 2 | 4 | |
| Thames | — | 3 | |
| Rainbow | — | 4 | |
| Parthian | — | 5 | |
| Odin | — | 6 | |
| Oberon | — | 3 | |
| Unity | 3 | — | |
| Shark | 1 | 7 | |
| Swordfish | — | 4 | |
| "L" | — | 7 | |
| "H" | — | 9 | |
| ***33+4 Escort Vessels.*** | | | |
| Black Swan | 2 | — | |
| Egret | 1 | — | |
| Bittern | 1 | 1 | |
| Aberdeen | — | 2 | |
| Grimsby | — | 8 | |
| Indus | — | 1 | |
| Hindustan | — | 1 | |
| Shoreham | — | 8 | |
| Hastings | — | 4 | |
| Bridgewater | — | 2 | |
| "Flower" | — | 3 | |
| Cornwallis | — | 1 | |
| Clive | — | 1 | |
| Lawrence | — | 1 | |
| Halcyon | 7 | 10 | |
| ***33+7 Minesweepers.*** | | | |
| "Town" | — | 23 | |
| ***6+5 Patrol Vessels.*** | | | |
| Kingfisher | 5 | 4 | |
| "PC" | — | 2 | |
| ***2 Net Layers.*** | | | |
| Protector | — | 1 | |
| Guardian | — | 1 | |
| ***18+3 Gunboats.*** | | | |
| Scorpion | 3 | — | |
| Robin | — | 1 | |
| Sandpiper | — | 1 | |
| Falcon | — | 1 | |
| Tern | — | 2 | |
| Gannet | — | 2 | |
| Aphis | — | 11 | |
| ***6+2 Coastal Minelayers and Netlayers.*** | | | |
| Linnet | 2 | 1 | |
| Plover | — | 1 | |
| Minerva | — | 3 | |
| Lassoo | — | 1 | |
| ***13+10 Torpedo Boats.*** | | | |
| Motor Type | 10 | 13 | |
| ***3 Monitors.*** | | | |
| 2 Terror | — | 2 | |
| 1 Marshal Soult | — | 1 | |
| ***2 Training Ships.*** | | | |
| Iron Duke | — | 1 | |
| Vindictive | — | 1 | |
| ***1 Target Ship.*** | | | |
| Centurion | — | 1 | |
| ***10+3 Depôt Ships.*** | 3 | 10 | |
| ***9+6 Surveying Vessels.*** | | | |
| Gleaner | 4 | — | |
| Stork | 2 | 1 | |
| Challenger | — | 1 | |
| Flinders | — | 3 | |
| Endeavour | — | 1 | |
| Herald | — | 2 | |
| Investigator | — | 1 | |
| ***6+1 Special Service Vessels (Tenders).*** | | | |
| Bloodhound | 1 | — | |
| Dwarf | — | 1 | |
| Redwing | — | 2 | |
| Nightingale | — | 2 | |
| Vernon | — | 1 | |
| ***47+1 Trawlers.*** | | | |
| Mastiff | 1 | — | |
| Vulcan | — | 1 | |
| "Gem" | — | 10 | |
| "Tree" | — | 10 | |
| Basset | — | 1 | |
| "Mersey" | — | 12 | |
| Dee | — | 4 | |
| Boom Working Vessels | — | 4 | |
| R.C.N., R.I.N., N.Z. | — | 5 | |



Warspite (Queen Elizabeth, Valiant, to be similar).

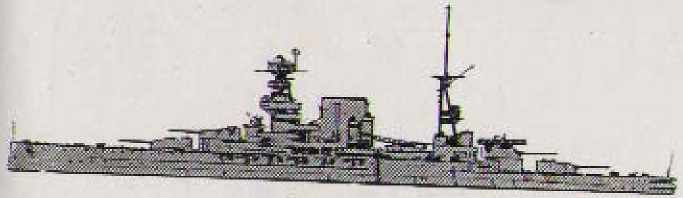


Royal Sovereign.
(Revenge, heavier bridge and S.L. platform on mainmast)

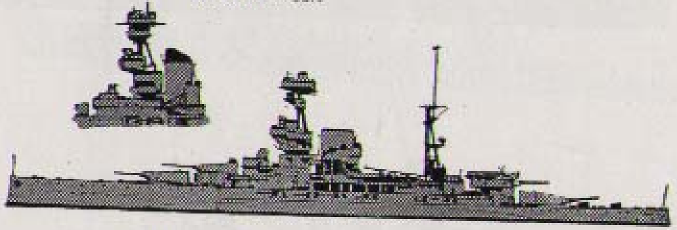


Nelson *class.*

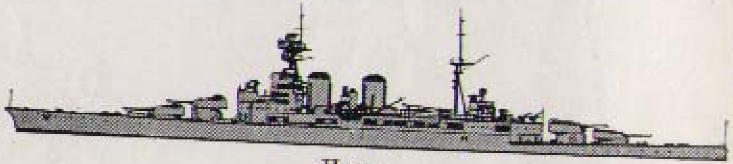
Resolution.



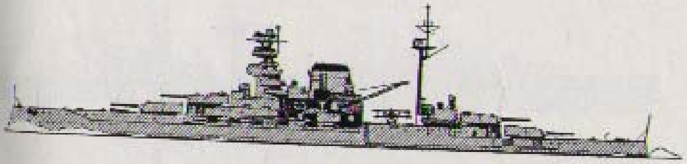
Barham.



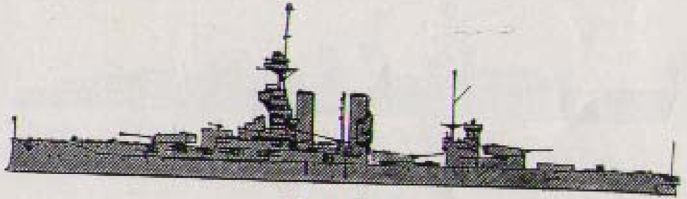
Ramillies, Royal Oak, Resolution.



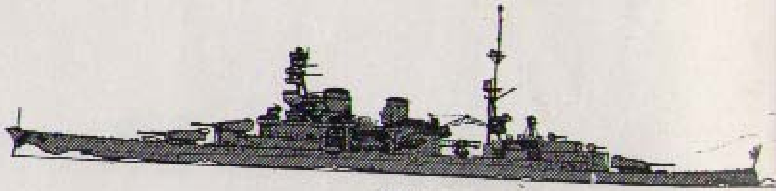
Hood.



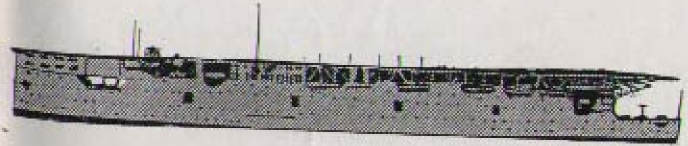
Malaya.



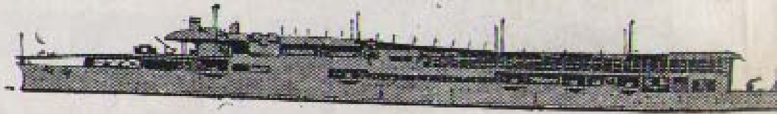
Iron Duke.



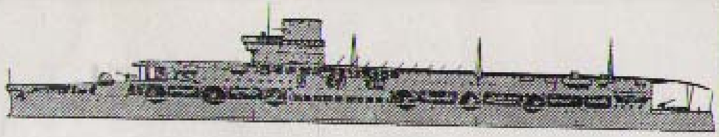
Repulse.
(Renown reconstructing.)



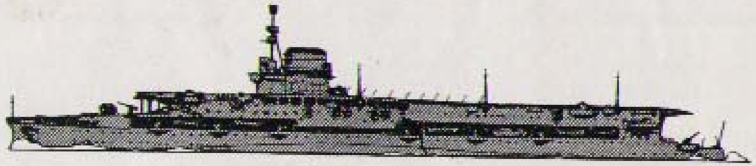
Argus.



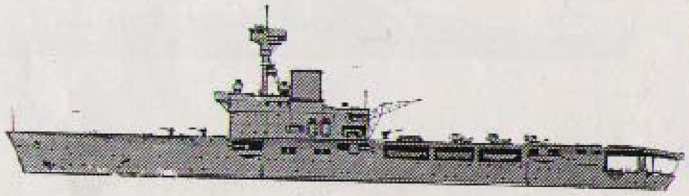
Furious.



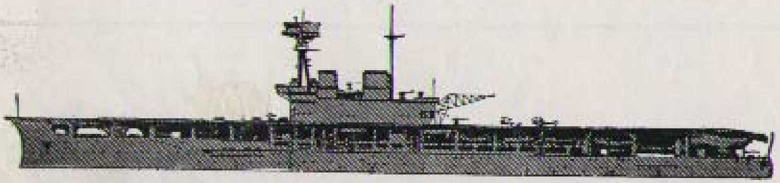
GLORIOUS.



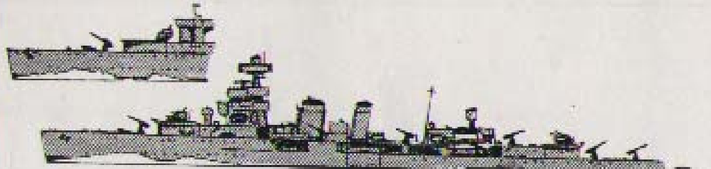
COURAGEOUS.



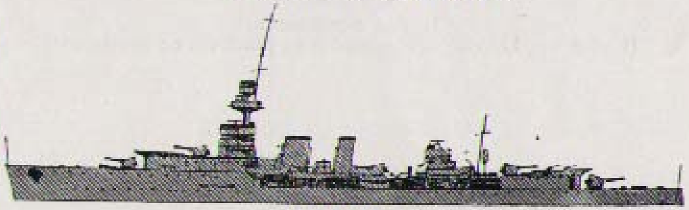
HERMES



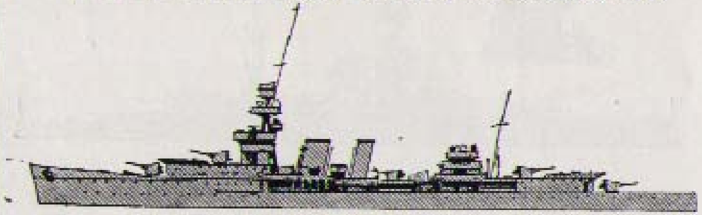
EAGLE.



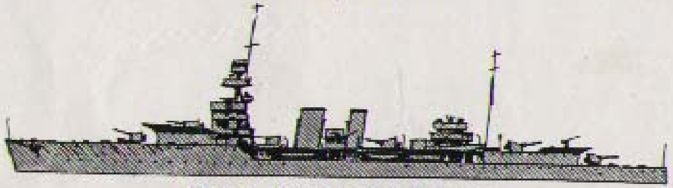
CURLEW.
(COVENTRY as Part Sketch.)



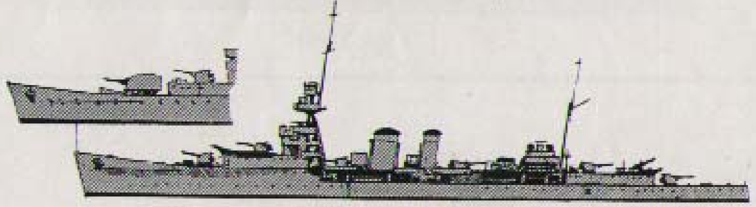
CURAÇOA.
(Now has tall mainmast.) Others of CERES *class* similar.



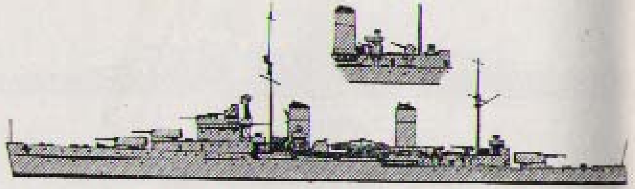
CAIRO *class*.
(Trawler bow.)



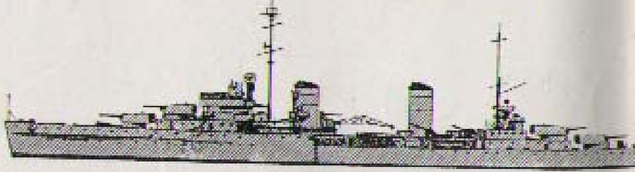
DANAE, DAUNTLESS, DRAGON.
(No. 3 gun abaft foremast.)



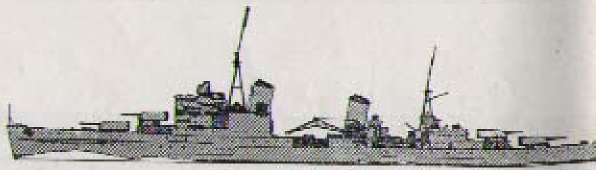
DELHI *group*.
(Trawler bow.)
(DIOMEDE as Part Sketch.)



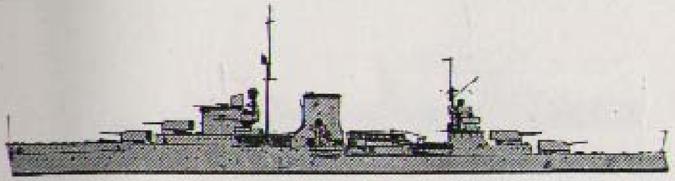
ARETHUSA, GALATEA.
(PENELOPE, AURORA as Part Sketch.)



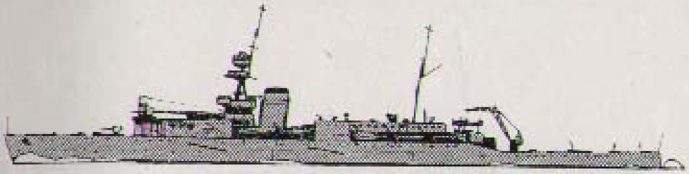
AMPHION *class*.



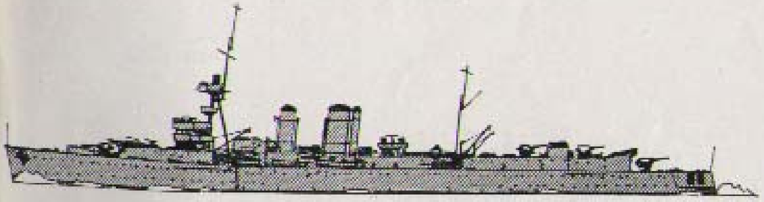
SOUTHAMPTON *class*.



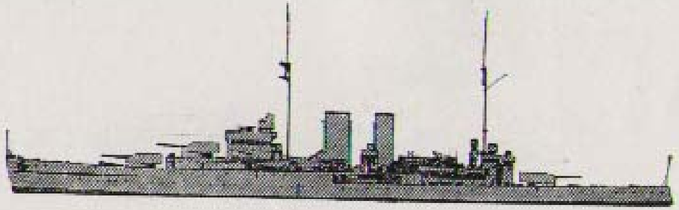
Achilles *type*.



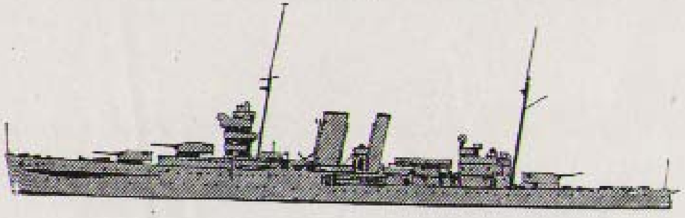
Vindictive.



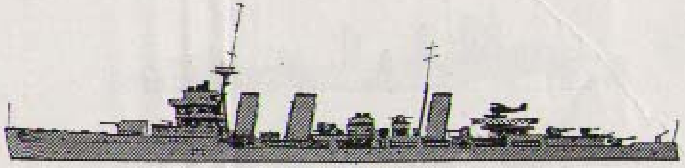
Adventure.



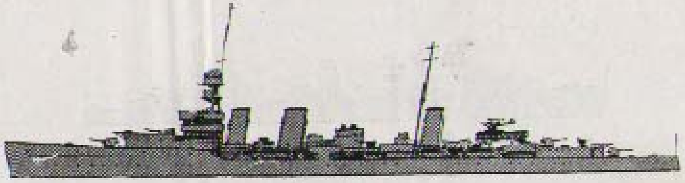
Exeter.



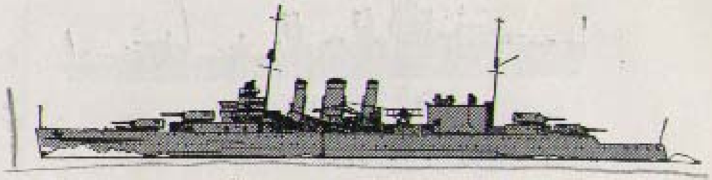
York.



Enterprise.



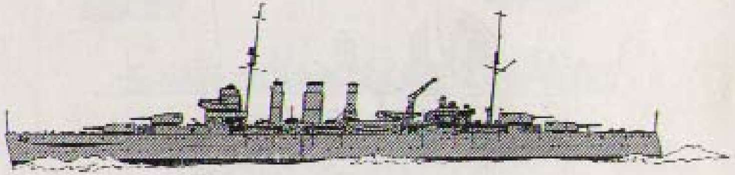
Emerald.



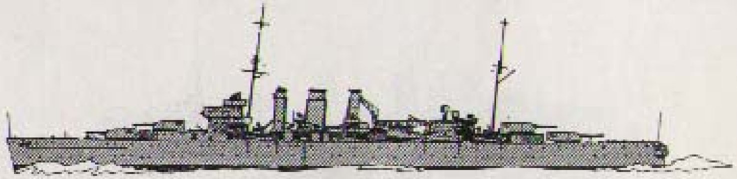
Cumberland, Suffolk.

*(Reconstructing as* Cumberland, *but flush deck to stern)*

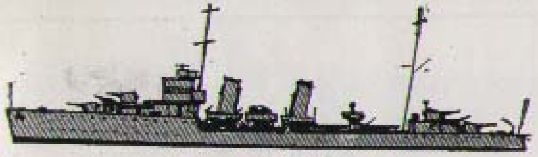
Kent *class.*
Australia, Canberra—R.A.N.



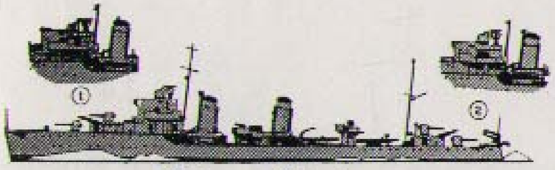
London *class.*



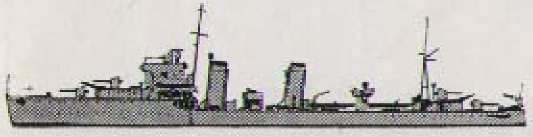
Dorsetshire *class.*



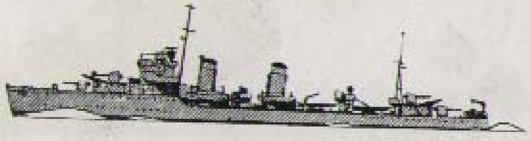
"A" and "B" *classes.*
Keith with C.N.



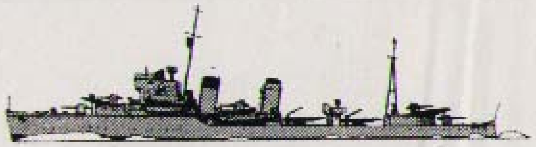
"E" and "F" *classes.*
(Except Esk and Express.)
(Inset 1, "C" *class;* inset 2, "D" *class.*)
Kempenfelt, Duncan, with C. N.



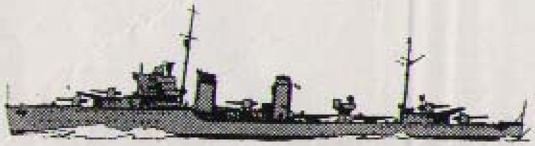
Esk, Express.
(Note mainmast.)
(Carry reduced armament when serving as Minelayers.)



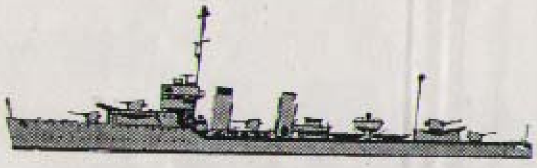
"G" and "H" *classes.*
(Hero, Hereward and "I" *class* with enlarged forebridge.)



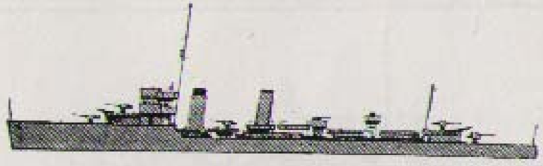
Grenville.
(Hardy, Inglefield, with tripod foremast.)



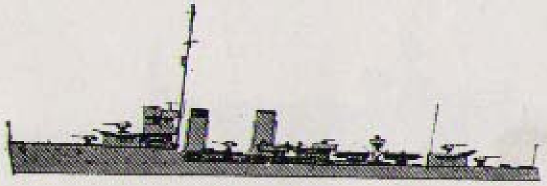
Exmouth, Faulknor.



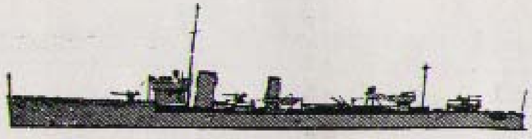
Codrington.
(Now has tall mainmast.)



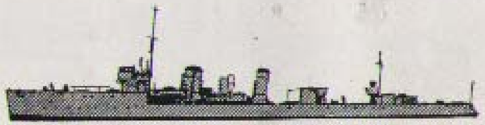
Bruce *type.*



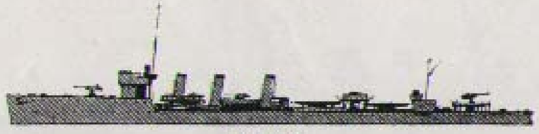
Broke *type.*
(All have tall mainmast.)



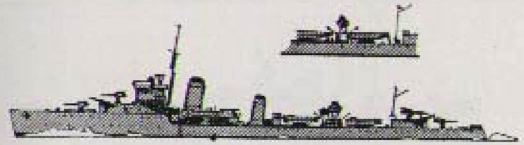
Admiralty "S" *class.*
(Some have tall mainmast.)



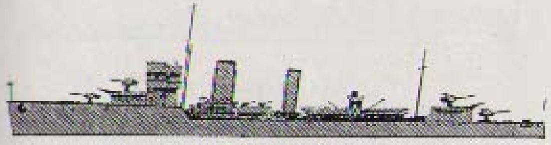
Tyrant.



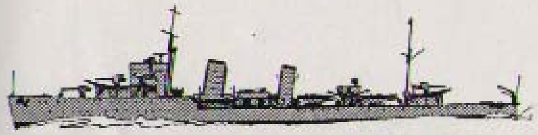
Skate.



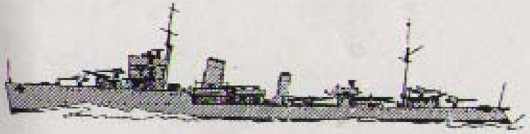
Veteran *group.*
(Wild Swan, tall mainmast; part sketch,
Witherington, Wivern, Wolverine, Worcester.)



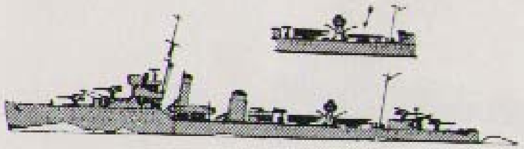
Wishart, Witch.



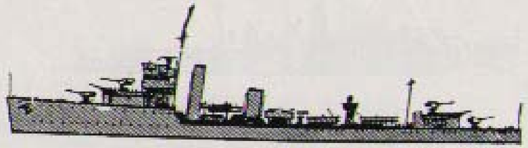
Amazon.



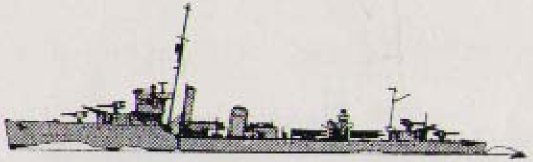
Ambuscade.



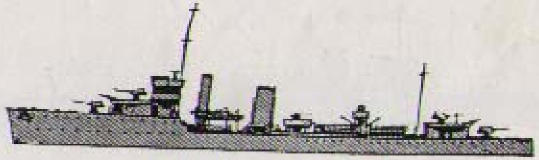
Admiralty "W" *class.*
Short mainmast Admiralty "V" *classes.*
Part Sketch Vimy, Velox, Versatile, Vortigern.



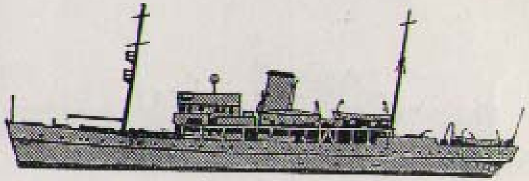
Vansittart *group.*



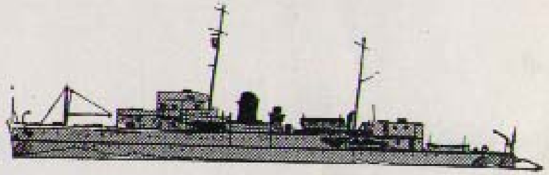
Valentine, Valorous.



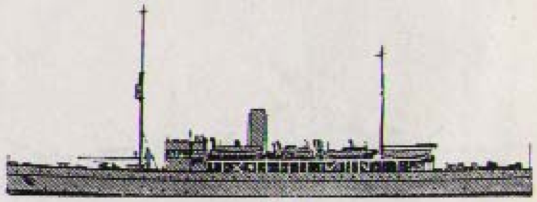
Wolsey, Woolston.
(Short mainmast.)
Viceroy, Viscount.



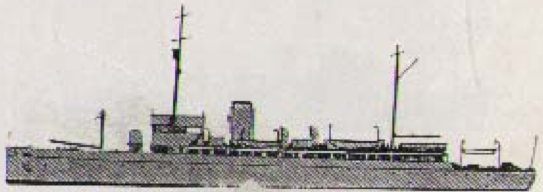
Challenger.



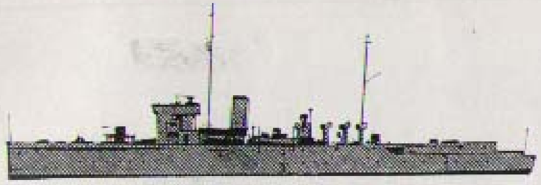
Stork.

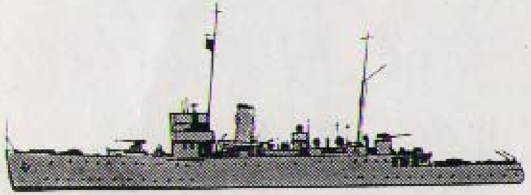


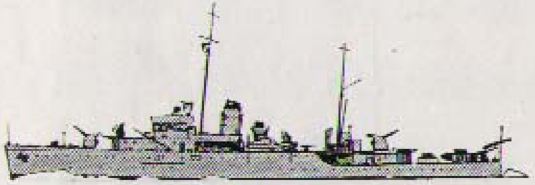
Herald.

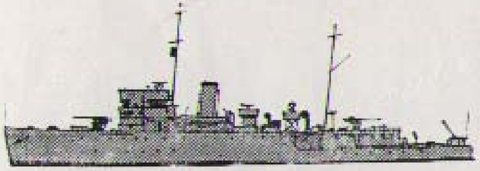


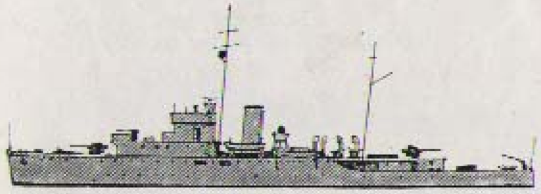
Flinders *type.*
(Kellett has shorter foremast.)

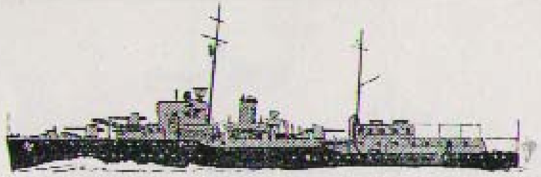

FALMOUTH.

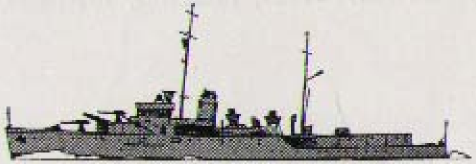

BRIDGEWATER, HASTINGS, SHOREHAM *classes.*

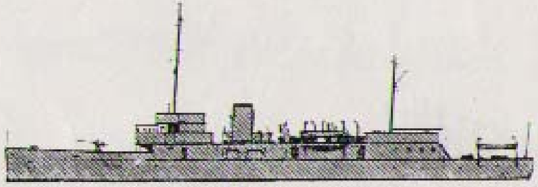

FLEETWOOD.

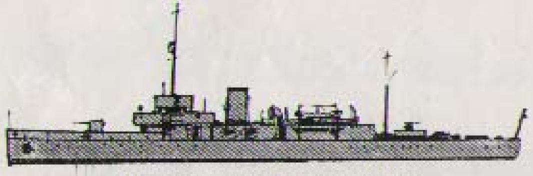

HALCYON *class.*

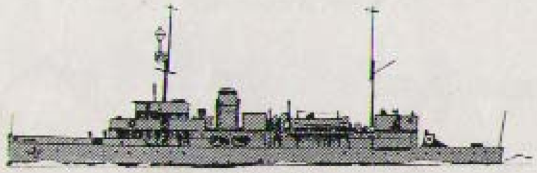

GRIMSBY *class.*

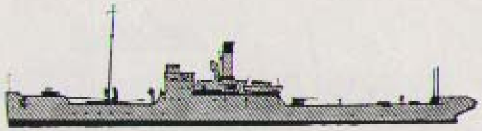

ENCHANTRESS.
(Gun before mainmast replaced by deckhouse.)

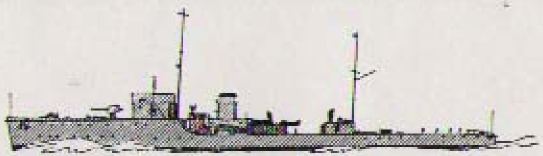

ABERDEEN.

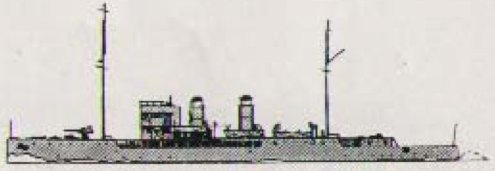

ALRESFORD.

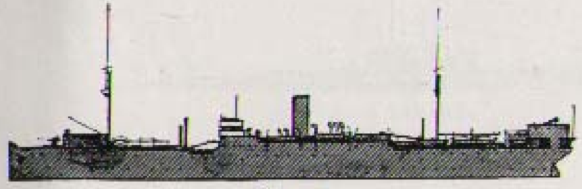

TWIN SCREW MINESWEEPERS.
("TOWN" *class.*)


SALTBURN.
(Frame aerial now removed.)

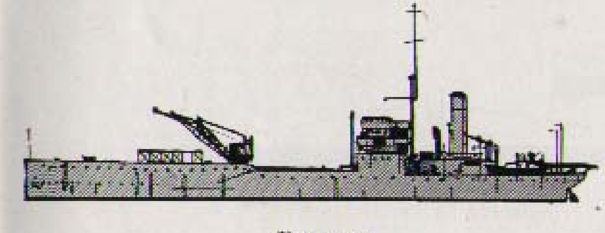

P.C.74.


KINGFISHER *class.*

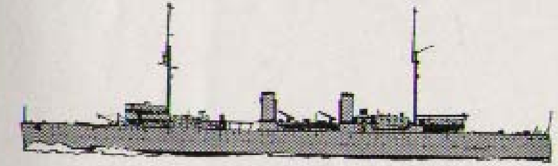

LUPIN, FOXGLOVE, ROSEMARY.
(Vary in details.)



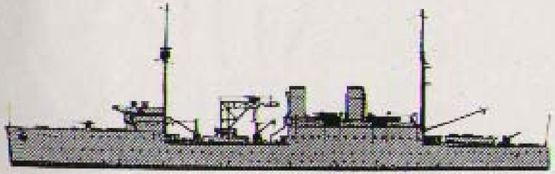
Cyclops.



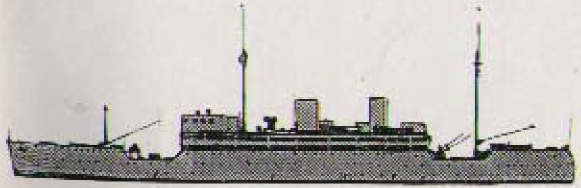
Pegasus.



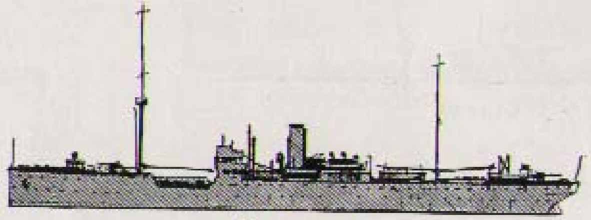
Woolwich.



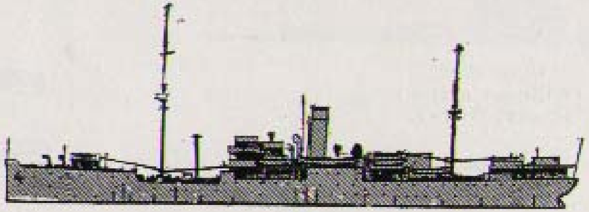
Resource.



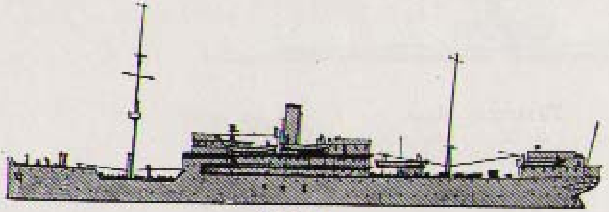
Medway.



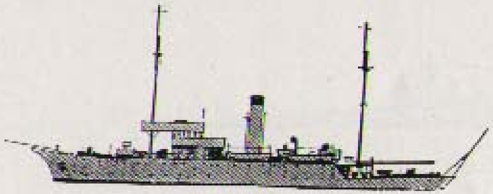
Greenwich.



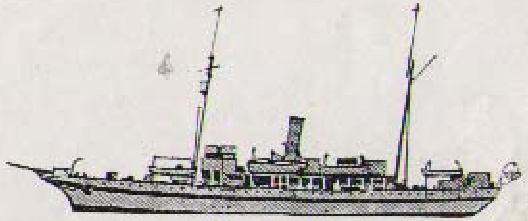
Lucia.



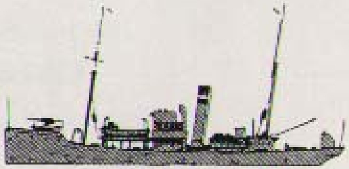
Titania.



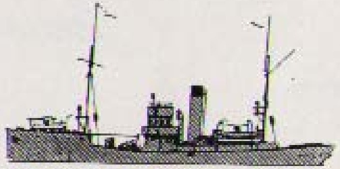
Alecto.



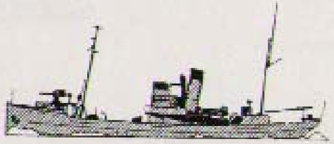
Endeavour.



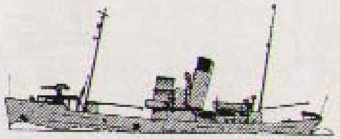
Mersey *type*.
(Trawlers.)



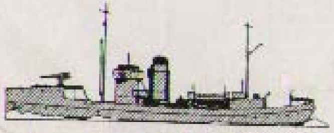
Dee *type*.
(Trawlers.)



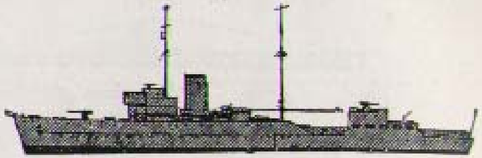
"Tree" *type*.
(Trawlers.)
(Vary in details.)



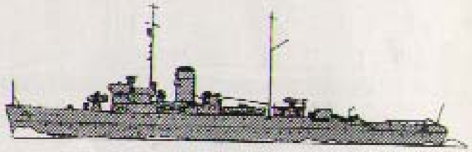
"Gem" *type*.
(Trawlers.)
(Vary in details.)



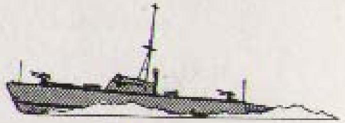
Basset.



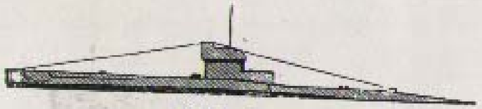
Guardian.

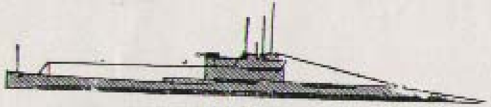


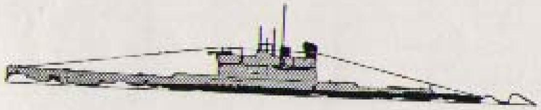
Protector.

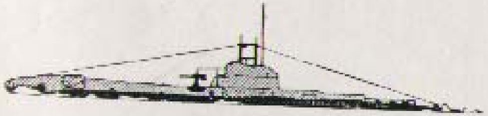


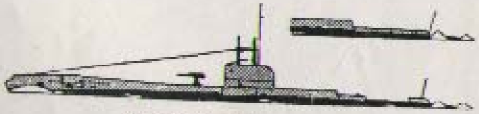
Torpedo Boats.

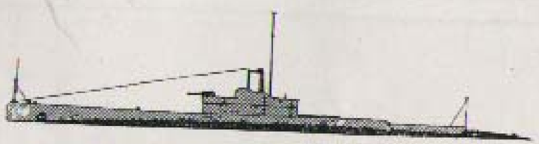

"H" *class.*

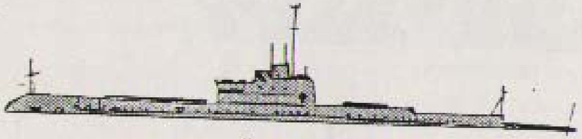

L 21–27.

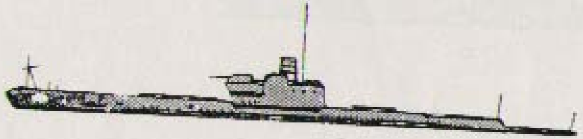

L 53, 54, 69.

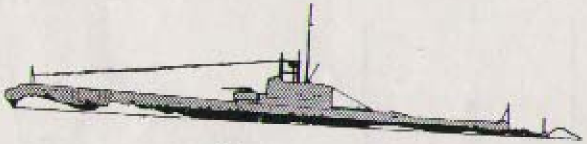

Shark *class.*

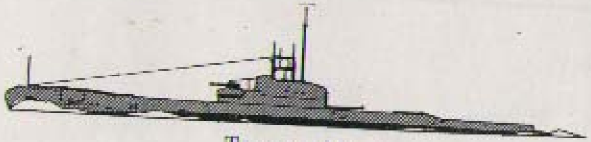

Starfish, Seahorse.
(Swordfish, Sturgeon as Part Sketch.)

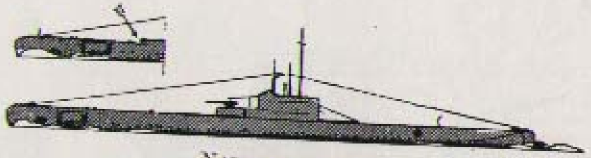

Oberon.

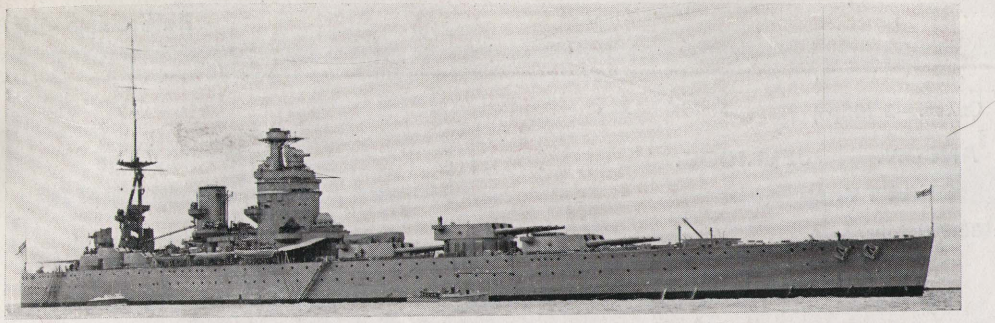

Odin *class.*
(With net cutter.)
Oxley, Otway.


Parthian *class.*


Rainbow *class.*


Thames *class.*


Narwhal *group.*
(Porpoise as Part Sketch.)



RODNEY, with catapult. (NELSON CLASS.) 1937, "*Fighting Ships*."

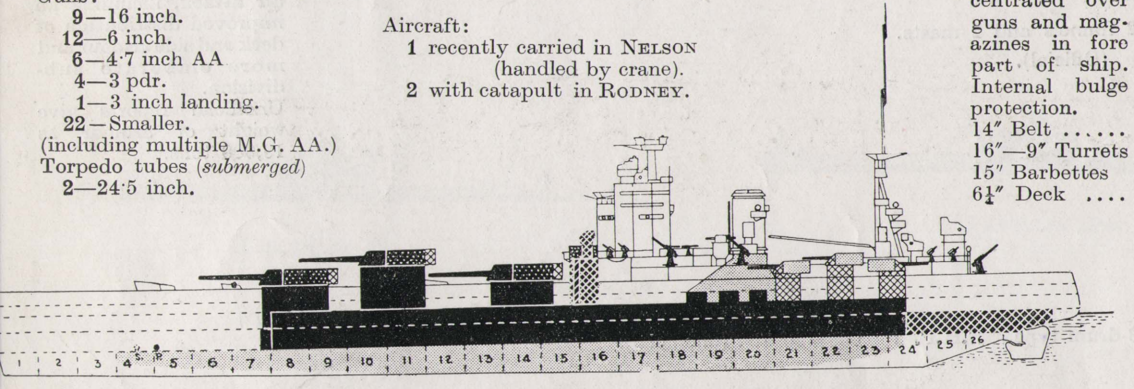
## **NELSON** (September 3rd, 1925), **RODNEY** (December 17th, 1925).

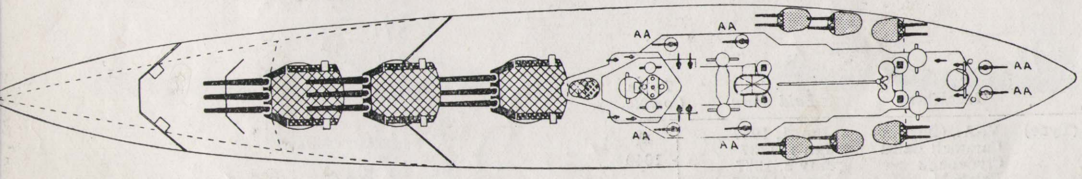
Displacement, 33,500 tons (*Nelson*), 33,900 tons (*Rodney*), (*full load*, about 38,000 tons).
Length, (*p.p.*) 660 feet, (*w.l.*) 702 feet, (*o.a.*) 710 feet. Beam, 106 feet. *Mean* draught, 30 feet.
Complement, as flagship, 1361; as private ship, 1314.

Guns:
9—16 inch.
12—6 inch.
6—4·7 inch AA
4—3 pdr.
1—3 inch landing.
22—Smaller.
(including multiple M.G. AA.)
Torpedo tubes (*submerged*)
2—24·5 inch.

Aircraft:
1 recently carried in NELSON (handled by crane).
2 with catapult in RODNEY.

Armour:
Is largely concentrated over guns and magazines in fore part of ship. Internal bulge protection.
14" Belt ......
16"—9" Turrets
15" Barbettes
6¼" Deck ....

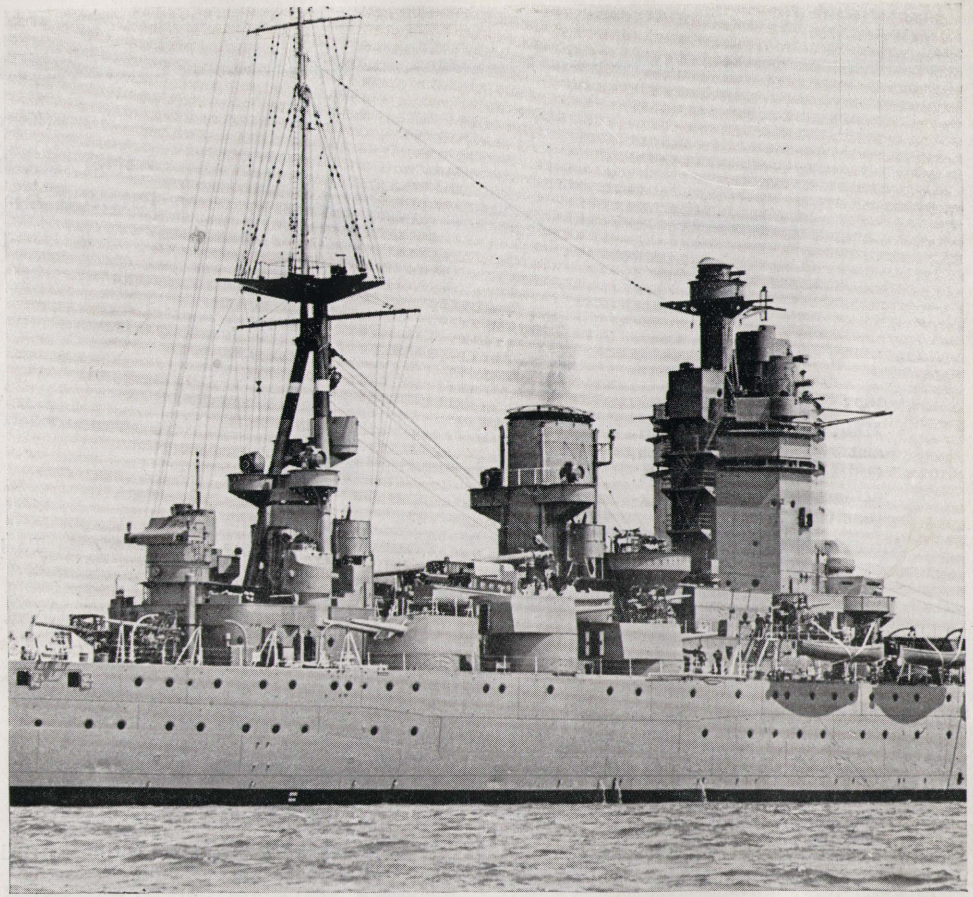




Machinery: Brown-Curtis geared turbines. 2 shafts. Boilers: 8 Admiralty 3-drum type (with superheaters). Designed H.P. 45,000=23 kts. Oil fuel: 4,000 tons. Consumption: full speed, 16 tons per hour; cruising speed, 2·7 tons per hour.

*General Notes.*—Both laid down under 1922–23 Estimates, being the last battleships designed by Sir E. Tennyson D'Eyncourt while D.N.C. They are reduced editions of the 48,000 ton battle-cruisers ordered in 1921 and cancelled under the Washington Treaty, in which 16 inch guns were to have been mounted in triple turrets. Designed to Treaty limits which could not be exceeded, and yet must be approached as closely as possible, weight estimation and economy was a far more important factor than in previous designs. The grouping of the main armament forward allows for a minimum length of armoured citadel with maximum protection to hull and magazines, and is considered to more than compensate for the loss of fire astern. The design is therefore peculiar, in that it is governed more by constructional than tactical principles. By placing the boiler room abaft the engine rooms smoke interference with the control positions is obviated. The bridge structure carries 16 inch, 6 inch and 4·7 inch directors, admiral's bridge, torpedo controls, signalling and navigating bridges, sea cabins and offices. Part of the material used in these two ships was originally ordered for the battle cruisers *Anson* and *Howe* (sister ships to *Hood*), construction of which was abandoned after the Armistice.

High freeboard of these ships proved its value in combined Fleet Exercise of March, 1934, when an Atlantic gale made little difference to their efficiency as compared with *Royal Sovereign* and *Queen Elizabeth* classes.



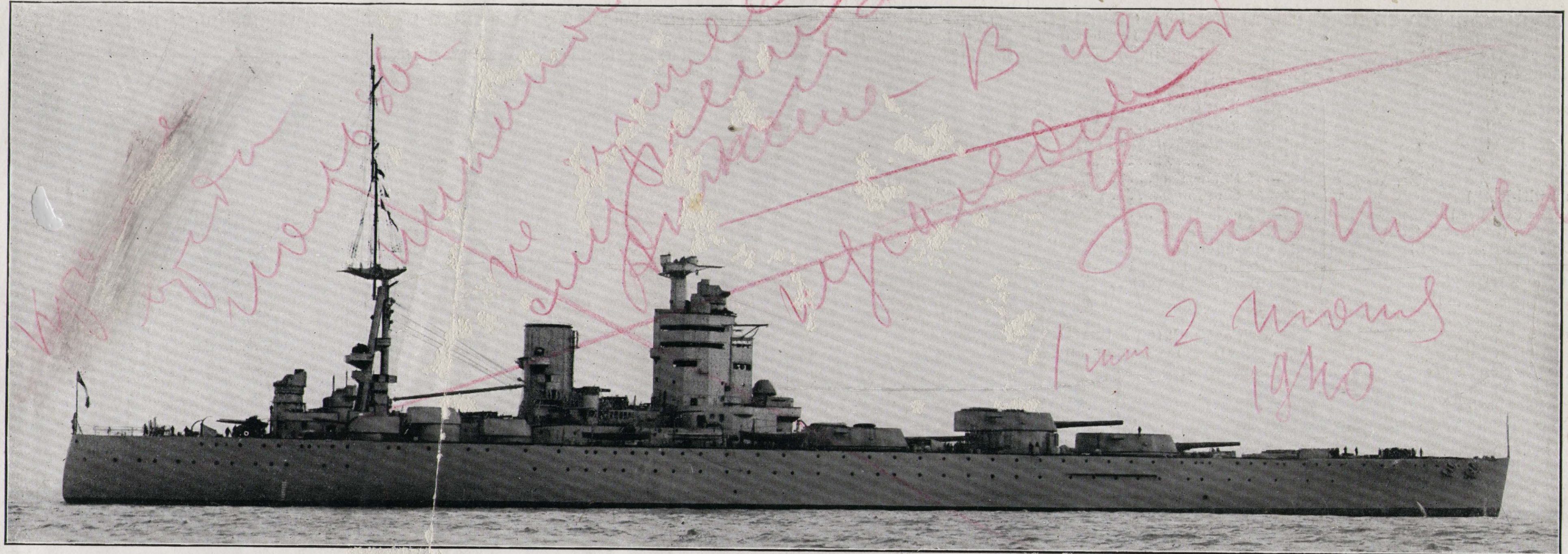
NELSON. 1934 *Photo, R. Perkins, Esq.*

*Cost.*—*Nelson* £7,504,055; *Rodney* £7,617,799. Cost of guns and turret armour approx. £3,000,000; engines £490,000. Steering gear is of novel design and rudder can be swung over in 30 secs. at full speed. Accommodation is on specially generous lines and all living spaces have natural lighting and ventilation. Annual cost of maintenance in full commission: *Nelson* as flagship, £362,500; *Rodney* as private ship, £319,000—inclusive in both cases of non-effective liability.

*Gunnery Notes.*—These are the only British warships mounting 16-inch guns. Elevation is 40° and range 35,000 yards, Cost of firing a triple salvo is £700. 6-inch guns have 60° elevation and can be used as AA. They are the first power worked 6-inch in the Service. Special measures have been taken to protect personnel and instruments from the blast of the after 16-inch guns when fired abaft the beam at full elevation.

*Armour Notes.*—Citadel belt extends from first 16 inch to aftermost 6 inch turret, with thick armour deck over same area with specially designed hatches. Underwater protection is most efficient and the usual external bulges have been replaced by an alternative system of hull construction developed from a long series of experiments.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* | *Boilers* |
|---|---|---|---|---|---|---|
| *Nelson* | Armstrong | Wallsend Co. | Dec. 28, 1922 | June, 1927 | 46,000=23·5 | Admiralty 3-drum |
| *Rodney* | Cammell Laird | Cammell Laird | | Aug., 1927 | =23·8 | |



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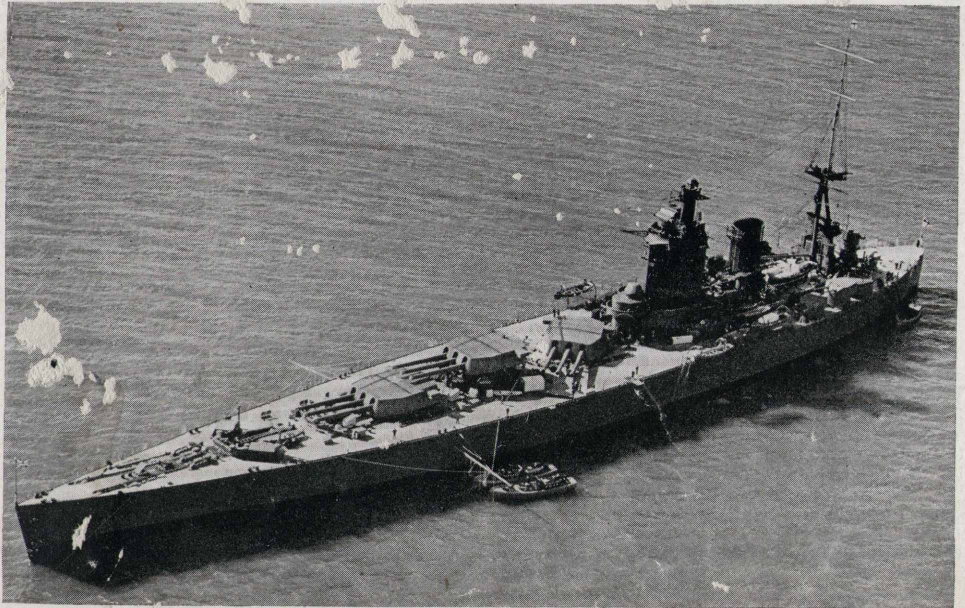
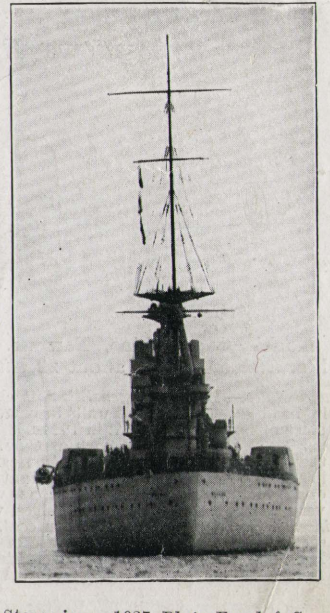
NELSON.

1927 Photo, Frank & Son.

NELSON (Showing crane). 1935, R. Perkins, Esq.



NELSON. 1935, Charles E. Brown.



Stern view. 1927 Photo, Frank & Son.

Архангельск VIII-44 — I-49

14.10.39

(Royal Sovereign Class.)—All fitted as Flagships.

**ROYAL SOVEREIGN** (29th April, 1915), **ROYAL OAK** (17th Nov., 1914), **RESOLUTION** (14th Jan., 1916), **RAMILLIES** (12th Sept., 1916), **REVENGE** (29th May, 1915).

Displacement, 29,150 tons, *about* 33,500 tons *full load*. Complement, 1009-1146.

Length (*p.p.*) 580 feet, (*w.l.*) 614½ feet, (*o.a.*) 620½ feet.† Beam, about 102½ feet. *Mean* draught, 28½ feet.

†*Revenge* 624½ feet (*o.a.*)

Guns:
- **8**—15 inch, 42 cal.
- **12**—6 inch, 50 cal.
- **8**—4 inch AA.*
- **4**—3 pdr.
- **1**—12 pdr. Field
- **5** M.G.
- **10** Lewis
- (besides multi-M.G.)

Torpedo tubes (21 inch):
- 2 *submerged* (removed from *R. Oak* and *Resolution*.)

Armour (H.T.):

Deck.
- 1" Fo'xle over Battery
- 1¼"—1½" Upper ......
- 2", 1½", 1" Main ......
- 2½", 1" (forw'd) } Lower
- 4", 3", 2½" (aft) }

Special Protection:
- 1½"—1" Torp. Prot. b.h. between end barbettes.

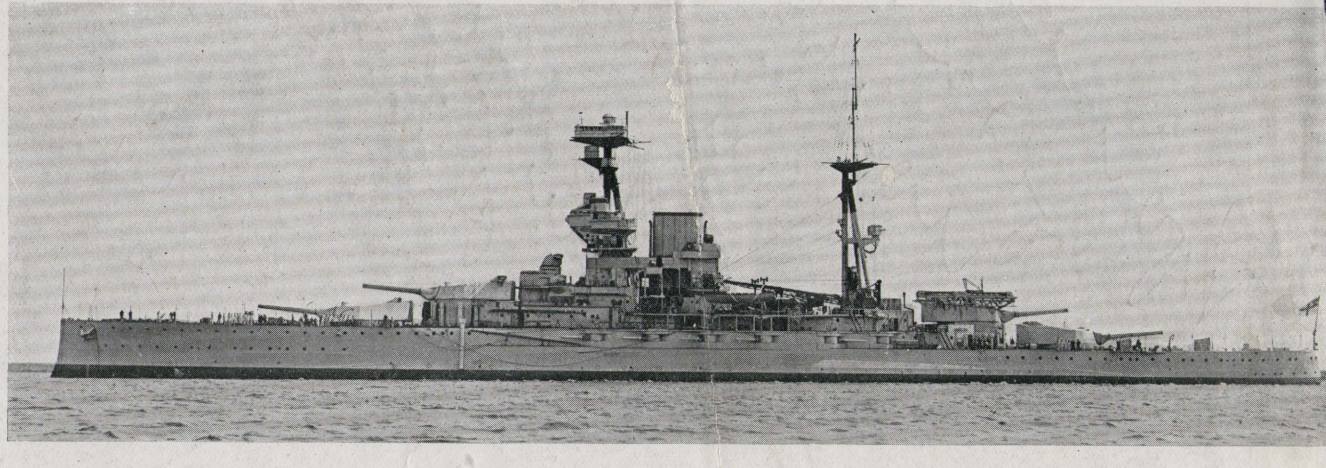
(Also bulges, of varying types.)

* 5—4 inch in Resolution
4—4 inch in Ramillies and R. Sovereign

Armour (K.C.):

Vertical
- 13" Belt ..............
- 6"—4" Belt (ends) ....
- 1" Belt (bow) ........
- 6", 4" Bulkheads (f. & a.)
- 6" Battery ..........
- 10"—7" Barbettes .....
- 13"—5" Gunhouses.....
- 6"—3" C.T. Base .....
- 11" C.T. (6"—3" hood) .
- 6" Fore com. tube ....
- 6" Torp. con. tower ...
- 4" Tube (T.C. tower) ..

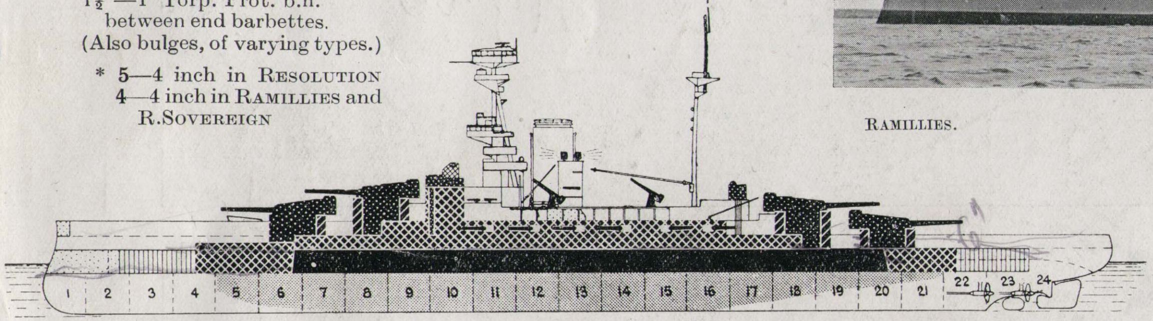
Aircraft:
- 1 with catapult (on X turret), in R. Oak, Ramillies and Resolution.

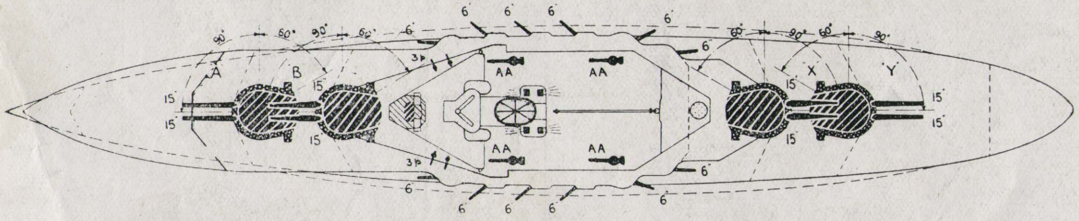


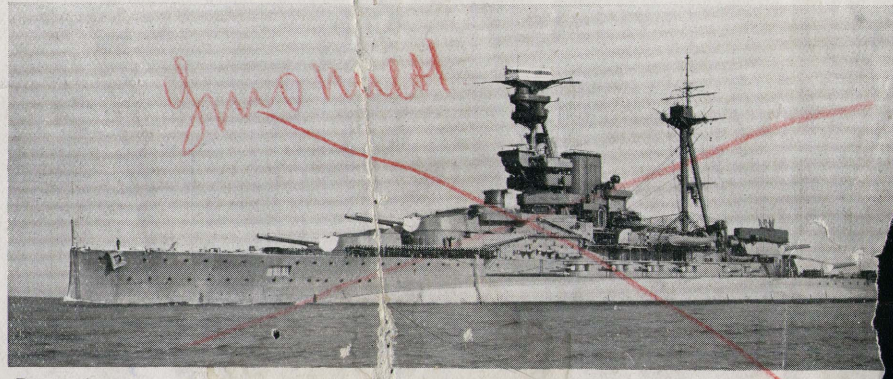
Ramillies.

1934 *Photo, R. Perkins, Esq.*

*Appearance Notes.*—*Resolution* has clinker screen to funnel. *R. Sovereign* retains pole mainmast and has very tall chart-house. *R. Oak* has different type of maintopmast; this ship and *Ramillies* have deep bulges, extending almost up to battery. Revenge has pole mainmast with S.L. platform and extra heavy forebridge. Details of bridge vary in each ship.







Royal Oak.

1936, *Wright*

Machinery: Turbine, Parsons. Boilers: (see *Notes*). 4 shafts. Designed H.P.: 40,000 = 23 kts. *without* bulges, about 22 *with* bulges. Oil fuel: *normal*, 900 tons; *maximum*, 3,230 tons.

*Gunnery Notes.*—Much as *Queen Elizabeth* class. Battery differently disposed in these ships. 6 inch batteries are wet in head seas, but dwarf walls in battery retain water and it is rapidly drained away. 4 inch AA. mounted in place of former 3 inch AA. in 1924-25. Two superstructure 6 inch removed in 1927-28.

*Armour Notes.*—Thicknesses much as *Queen Elizabeth* class, but armour differently distributed. Barbettes 6"—4" as they descend behind belt. Gunhouses, 13" face, 11" sides and rear; crowns 5". In these ships 2" protective deck has a high 2" slope behind belt, so that flat part of protection can be put on main deck and at top of belt instead of a deck lower. Internal protection is very good, and with protective bulges, defence against underwater attack is very strong. All refitted with bulges, which in some ships extend almost up to battery.

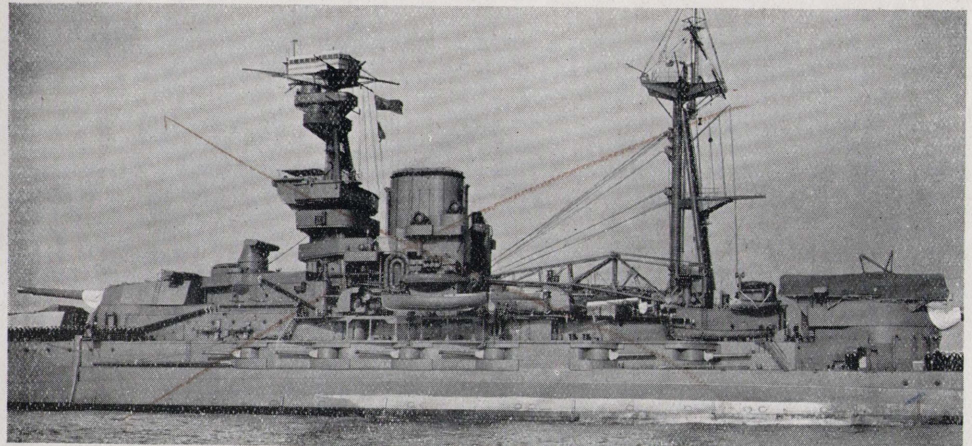
*Engineering Notes.*—Designed to burn coal, but while building "all oil fuel" was adopted, so that 23 kts. would be secured with the resulting increase of H.P. Addition of bulges has brought speed down again to about 22 kts. Main Turbines are direct drive, cruising Turbines geared.

*General Notes.*—Begun under 1913-14 Estimates. *Revenge* first named *Renown*. *Ramillies* injured herself at launch and was delayed in completion. They are fine ships, but suffer rather from reduced freeboard. Searchlights on main mast removed 1922. Refits: *R. Sovereign*, 1927-28; *Royal Oak*, 1922-24; *Ramillies* and *Resolution*, 1926-27; *Revenge*, 1928; *Resolution*, 1930; *Royal Oak*, 1934-36; *Revenge*, 1936-37.

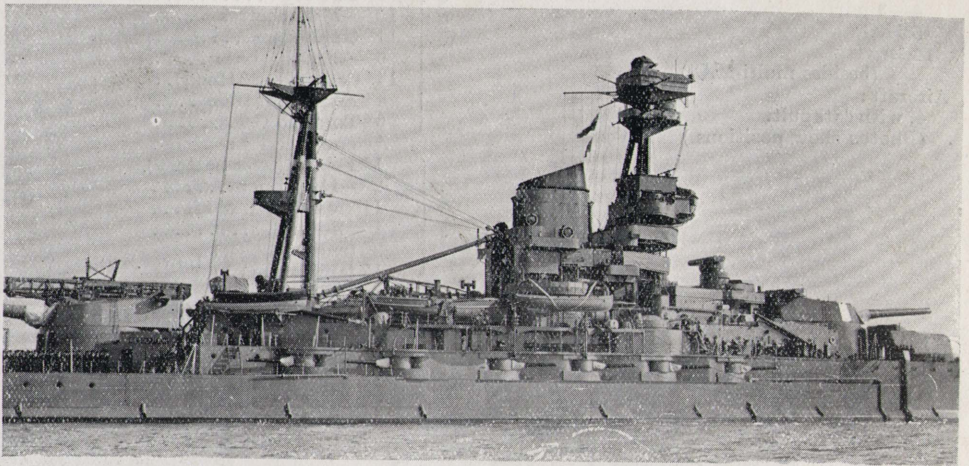
*Cost.*—*Royal Oak* £2,468,269, which was rather below average for the class.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Com-pleted* | *Trials:—* | |
|---|---|---|---|---|---|---|
| *Royal Sovereign* | Portsmouth Y. | Parsons | Jan.'14 | May, '16 | 41,115 = 21·6 | 18 |
| *Royal Oak* | Devonport Y. | Hawthorn | Jan.'14 | May, '16 | 40,360 = | 18 |
| *Resolution* | Palmer | Palmer | Nov.'13 | Dec., '16 | 41,406 = | |
| *Ramillies* | Beardmore* | Beardmore | Nov.'13 | Sept. '17 | 42,356 = 21·5 | |
| *Revenge* | Vickers | Vickers | Dec.'13 | Mar., '16 | 42,962 = 21·9 | |

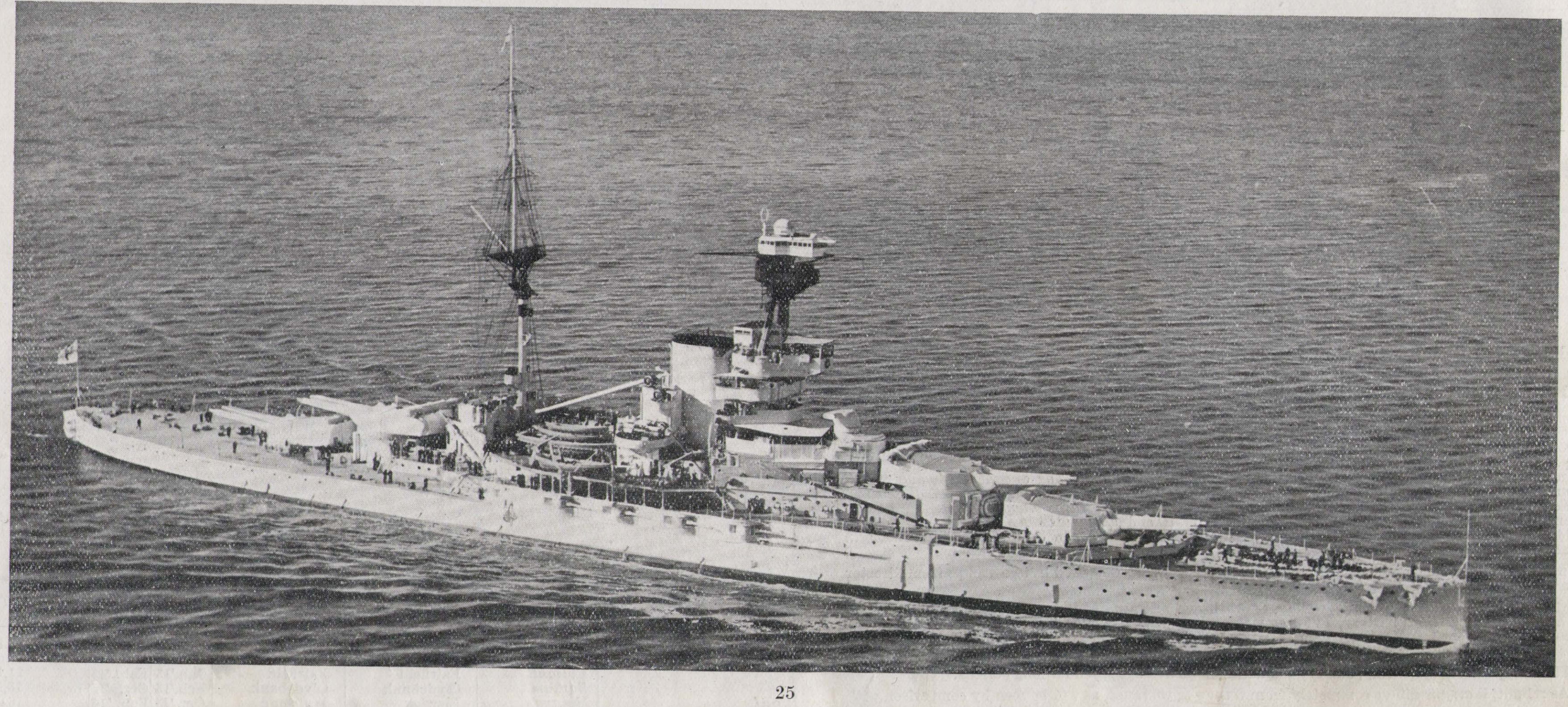
*Towed to Liverpool and completed by Cammell Laird & Co.



**Royal Oak.** Showing catapult, crane and AA. guns. (Control top on main since added.) 1936, *Wright & Logan.*



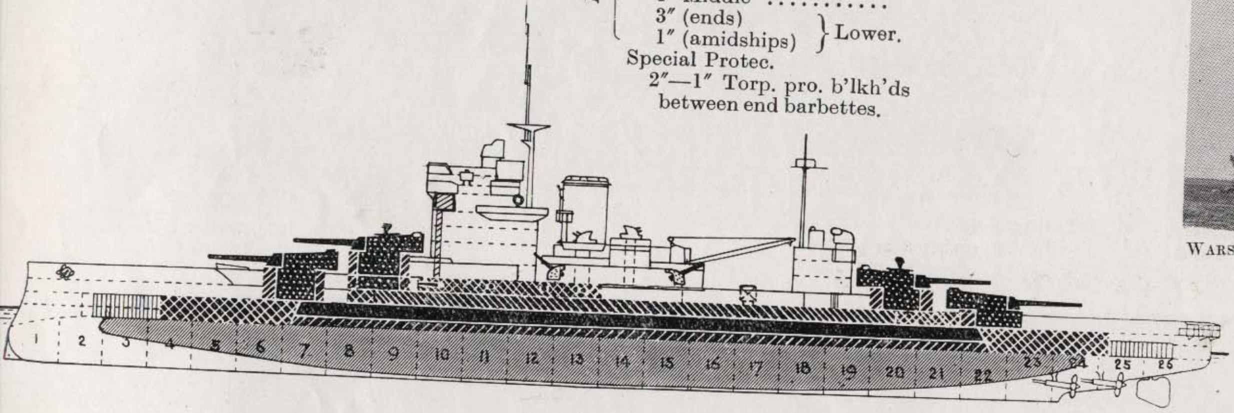
**Resolution** as refitted. 1936, *Wright & Logan.*

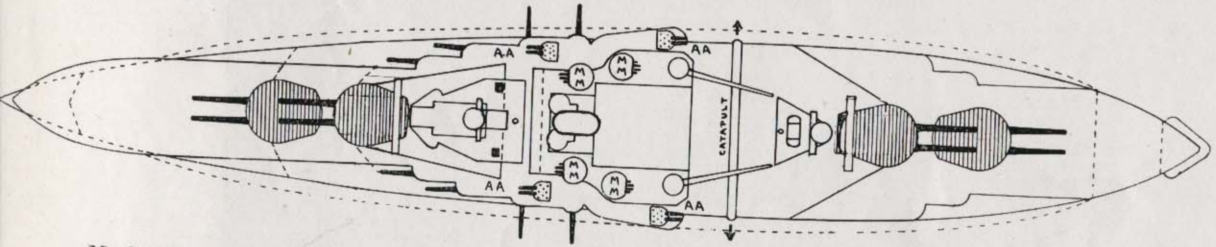


**Revenge.** 1935, *Charles E. Brown*

Guns:
8—15 inch, 42 cal.
8—6 inch, 50 cal.
8—4 inch AA.
4—3 pdr.
**5** M.G.
**10** Lewis
(besides multi-M.G.)
Aircraft:
4, with catapult.
(Photos show positions.)

*Vertical.*
13" on waterline .. } Side
6"—4" over w.l. .. } Side
6"—4" (ends) .... } Side
6", 4" Bulkheads (f. & a.)
6" Battery ..........
10"—7" Barbettes .....
11" Gunhouses ........
6"—3" C.T. base .....
14" C.T. (6"—2" Hood)..
4" Fore com. tube ....
6" Torpedo C.T. ......
Armour (H.T.):
*Deck.*
1" Fo'xle (over battery).
2"—1¼" Upper .......
1¼" Main fwd. & aft...
1" Middle ...........
3" (ends) } Lower.
1" (amidships) } Lower.
Special Protec.
2"—1" Torp. pro. b'lkh'ds
between end barbettes.





Machinery: Parsons turbine, but *Valiant* had Brown-Curtis before reconstruction. Geared cruising turbines in all ships. Boilers: 24 large tube (see *Notes*). Designed H.P.: 80,000 as re-constructed = 25 kts. Oil fuel: 650 tons *normal*, 3,400 tons *max*. Radius of action: *about* 4,400 miles.

*General Notes.*—First four begun under 1912 Estimates. *Malaya*, extra ship, gift of Federated Malay States. Cost, nearly £3,000,000 per ship. (*Q.E.*, £3,014,103; *Malaya*, £2,945,709; *Warspite*, £2,524,148.) Annual upkeep= £170,416 per ship. *Q.E.*, *Barham* and *Warspite* have stern walks. Re-construction of this class, between 1925 and 1933, involved an expenditure of over £1,000,000 per ship; it included the remodelling of control top and bridge-work and the trunking of the forefunnel into the second. Two Torpedo tubes were removed. In 1934 *Warspite* and *Malaya* were taken in hand for further re-construction of an extensive character involving the provision of new turbines, additional protection, increased accommodation for aircraft and augmented AA. armament. Cost of alterations, £2,114,214 and £976,963, respectively. Both completed refits in 1937, when *Valiant* and *Queen Elizabeth* were taken in hand for similar renovation; former being re-engined by Fairfield, latter by Parsons.

*Gunnery Notes.*—15 inch guns and mountings designed for 20° elevation. 6 inch controlled in two groups from director towers on middle bridges.

*Armour Notes.*—Belt is 13" at w.l. only, 6" on upper edge, 8" on lower, and applied in vertical strakes. Barbettes, 6" and 4" within belt. 1½" traverses to battery, but no rear screens—only dwarf walls to retain and drain away water admitted to battery. Rear bulkhead to battery is 6" diagonal and 4" where it crosses centre line. Internal protection of these ships is very good. All this class are fitted with bulges.

*Engineering Notes.*—These ships steam splendidly, and can maintain a high average speed for long periods.

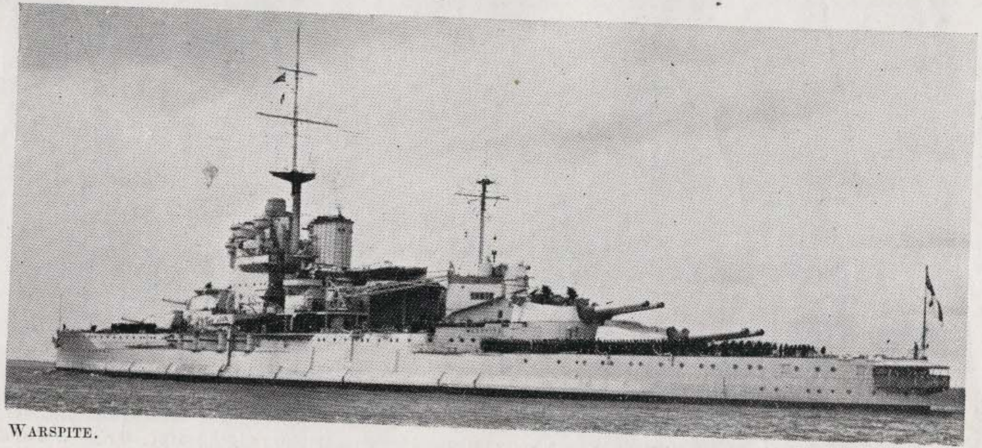
*Appearance Notes.*—As rebuilt, *Warspite* differs completely from former appearance, as will be seen by comparison with *Barham*.

(QUEEN ELIZABETH CLASS—1st 3 SHIPS.)

## **QUEEN ELIZABETH** (16th Oct., 1913), **WARSPITE** (26th Nov., 1913), **VALIANT** (4th Nov., 191

Displacement, 31,100 tons (*about* 35,000 tons *full load*). Complement, 1124-1184. All fitted as flagships.

Length (*p.p.*), 600 feet; (*o.a.*) { 643¾ ft., except *Valiant*, 639¾ ft. } (*w.l.*) 634½ feet. Beam, 104 feet. { *Mean* draught, 30⅔ / *Max.* „ 33½



WARSPITE.

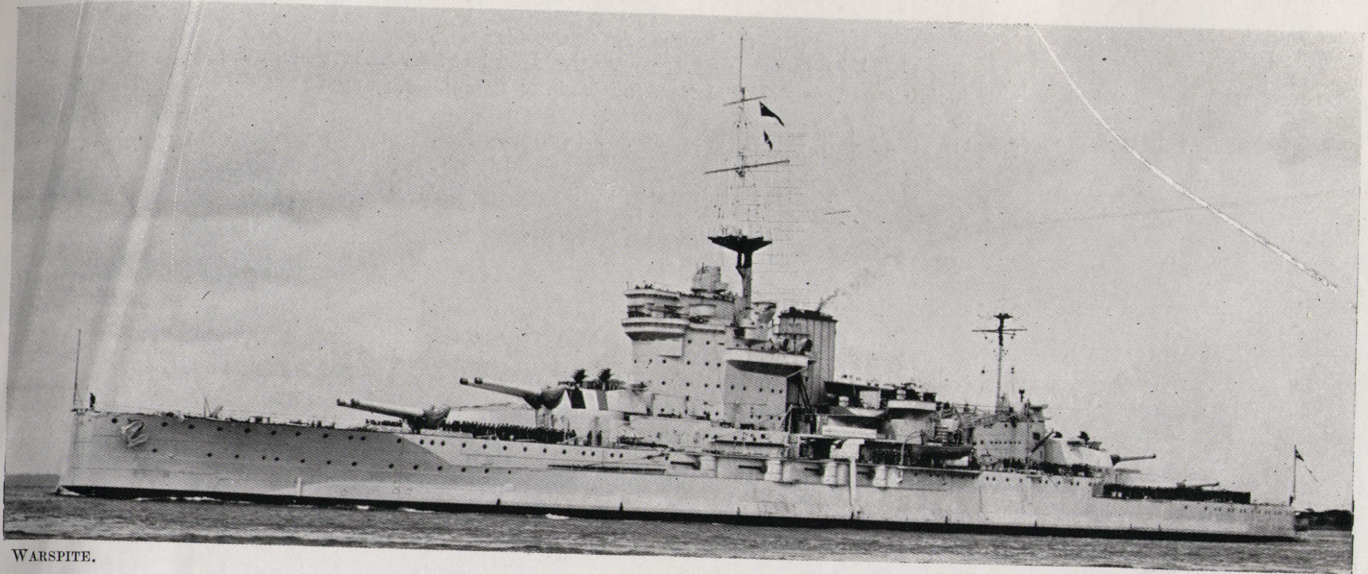
1937, *Wright & Logan.*

2 - 1947 - the [illegible]

WARSPITE.

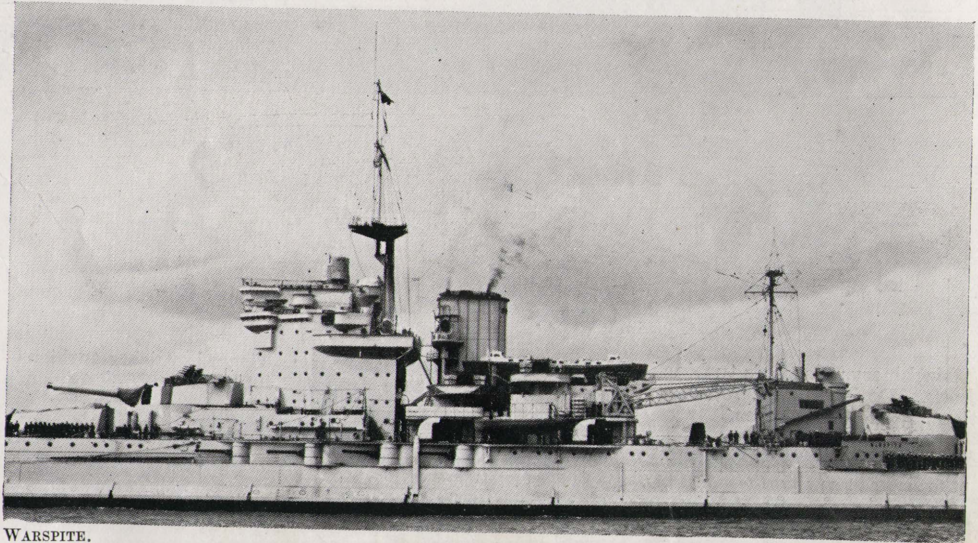
1937, *Cribb*

| *Name.* | *Builder.* | *Machinery.* | *Laid down.* | *Completed.* | *Trials.* | *Boilers.* |
|---|---|---|---|---|---|---|
| *Queen Elizabeth* | Portsmouth | Wallsend | Oct. '12 | Jan., '15 | 75,130= | 24 Babcock |
| *Warspite* | Devonport | Hawthorn | Oct. '12 | Mar., '15 | 77,510= | 24 Yarrow |
| *Valiant* | Fairfield | Fairfield | Jan.'13 | Feb., '16 | 71,112= | 24 Babcock |
| *Barham* | Clydebank | Clydebank | Feb.'13 | Oct. '15 | 76,575= | 24 Yarrow |
| *Malaya* | Elswick | Wallsend | Oct. '13 | Feb..'16 | 76,074= | 24 Babcock |



WARSPITE.

1937, *Wright & Logan.*



**WARSPITE.**

1937, *Wright & Logan.*

(Queen Elizabeth Class—4th and 5th Ships)

## +**BARHAM** (31st Dec., 1914), 25.11.41 **MALAYA** (18th Mar., 1915).

Displacement, 31,100 tons (*about* 35,100 tons *full load*). Complement, 1124-1184. All fitted as flagships.

Length (*p.p.*), 600 feet; (*o.a.*) { 643¾ ft., except *Malaya*, 639¾ ft. } (*w.l.*) 634½ feet. Beam, 104 feet. { *Mean* draught, 30⅔ feet / *Max.* „ 33½ „

Guns:
- **8**—15 inch, 42 cal.
- **12**—6 inch, 50 cal.
- **8**—4 inch AA. (only 4 in *Barham*)
- **4**—3 pdr.
- **5** M.G.
- **10** Lewis. (besides multi-M.G.)

Torpedo tubes:
- **2**—21 inch in *Barham.*

Aircraft:
- **4**, with catapult, in *Malaya.*
- **1**, with catapult, in *Barham.*

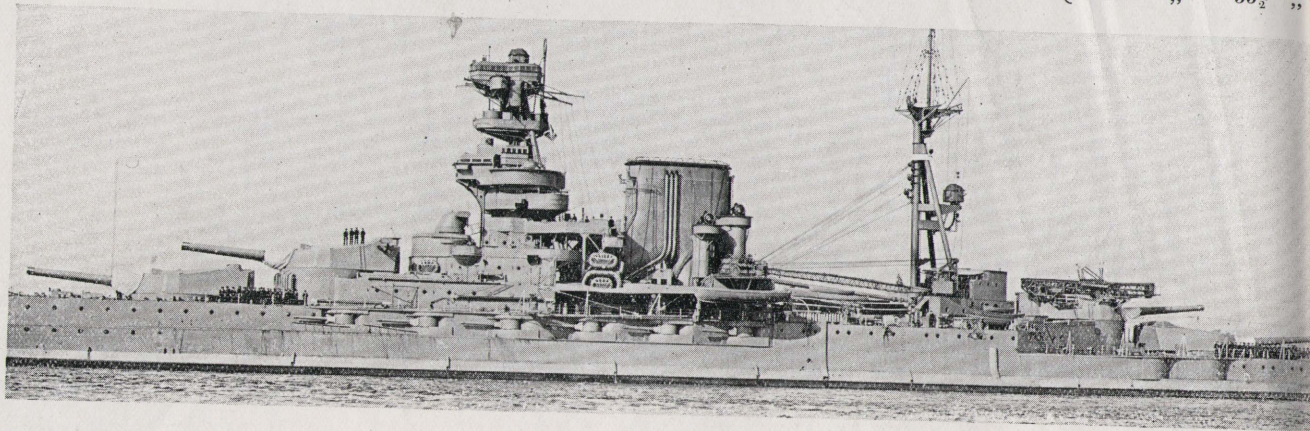
Armour (K.C.):

*Vertical*
- 13″ on waterline .. } Side
- 6″—4″ over w.l. .. } Side
- 6″—4″ (ends) .... } Side
- 6″, 4″ Bulkheads (f. & a.)
- 6″ Battery ............
- 10″—7″ Barbettes ......
- 11″ Gunhouses ..........
- 6″—3″ C.T. base ......
- 14″ C.T. (6″—2″ Hood) ..
- 4″ Fore com. tube ....
- 6″ Torpedo C.T.........

Armour (H.T.):

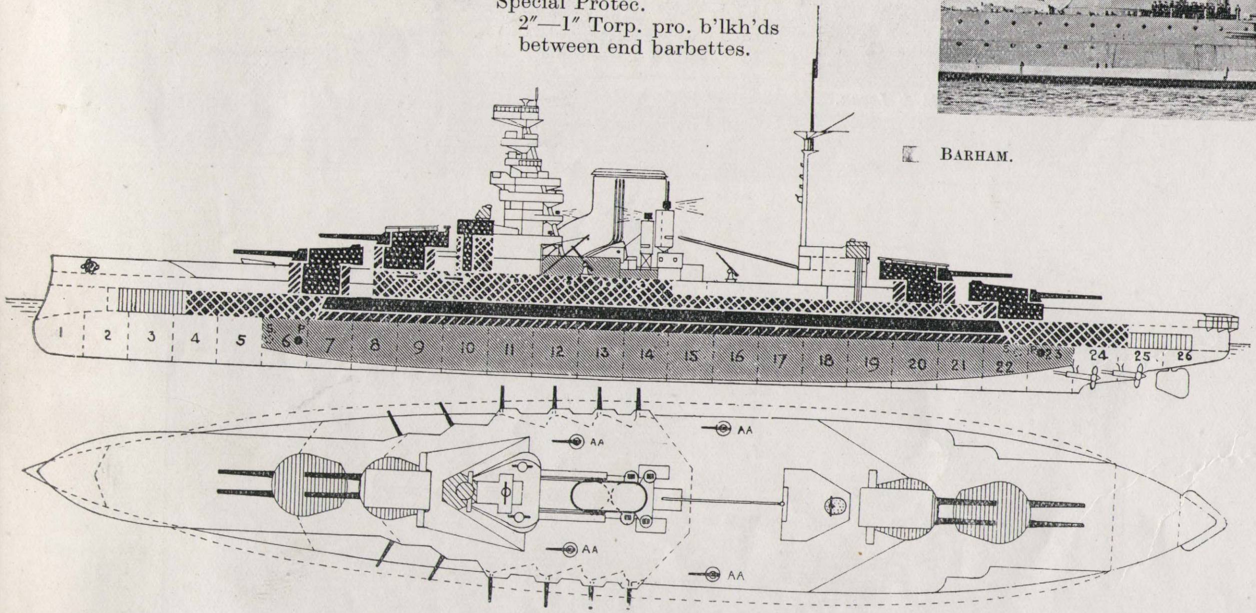
*Deck.*
- 1″ Fo'xle (over battery).
- 2″—1¼″ Upper ........
- 1¼″ Main fwd. & aft. ..
- 1″ Middle ............
- 3″ (ends) } Lower.
- 1 (amidships) } Lower.

Special Protec.
- 2″—1″ Torp. pro. b'lkh'ds between end barbettes.



BARHAM.

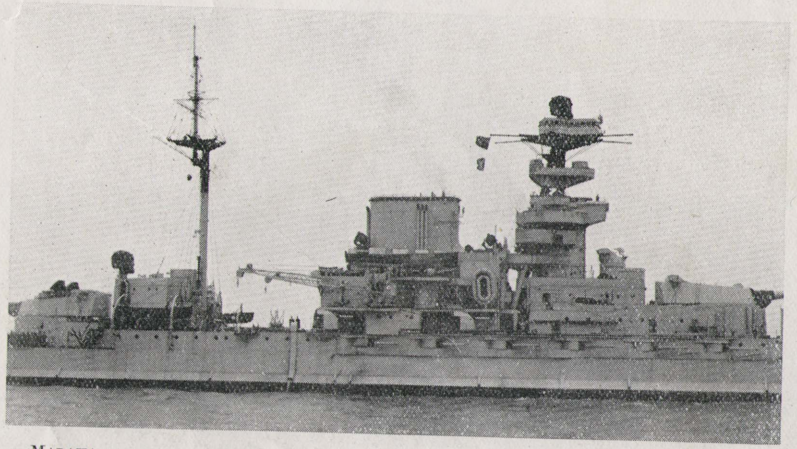
1934, *R. Perk*



Machinery: Parson's turbine in *Malaya*, Brown-Curtis in *Barham*. Geared cruising turbines in both. Designed H.P. 75,000=25 kts. Oil fuel: 650 tons *normal*, 3,400 tons *max*. Radius of action: *about* 4,400 miles.

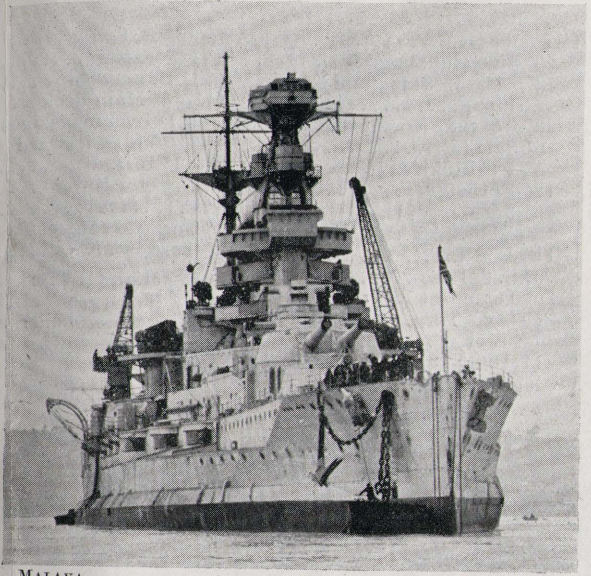
*Appearance Notes.*—*Barham* has tripod mainmast and catapult on roof of X turret, flag deck extended aft to funnel and after shelter deck built up. *Malaya* has funnel encased by platforms and S.L. redistributed. Large hangar abeam of funnel, and new type (athwartship) catapult before mainmast.

(For other notes and data concerning these two ships, see earlier page describing first 3 units of this class).

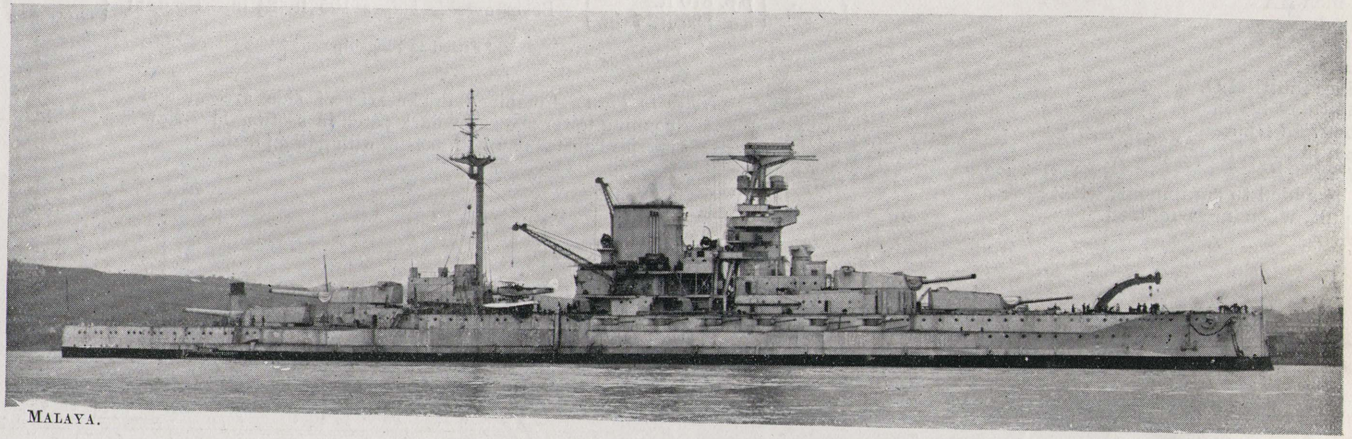


MALAYA.

1937, *Wright & Logan.*

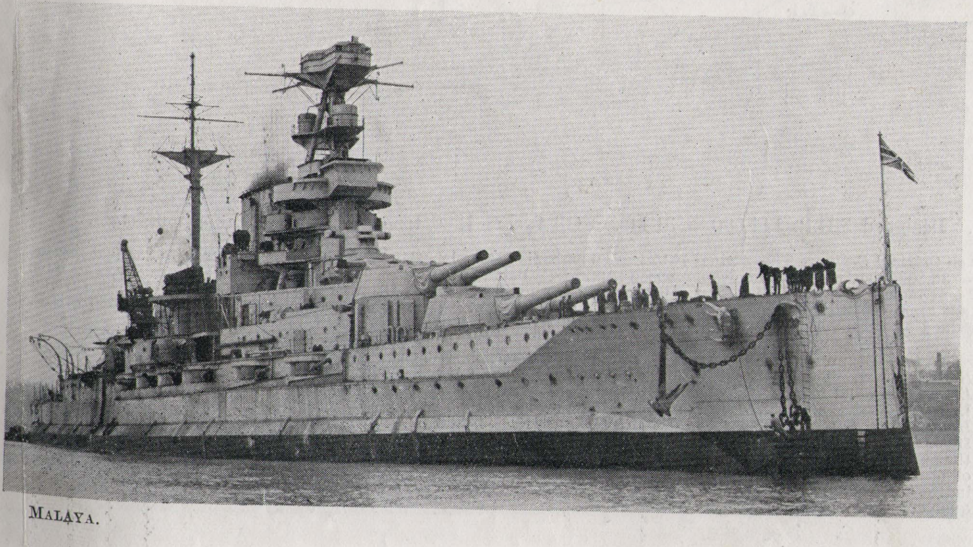


Malaya.

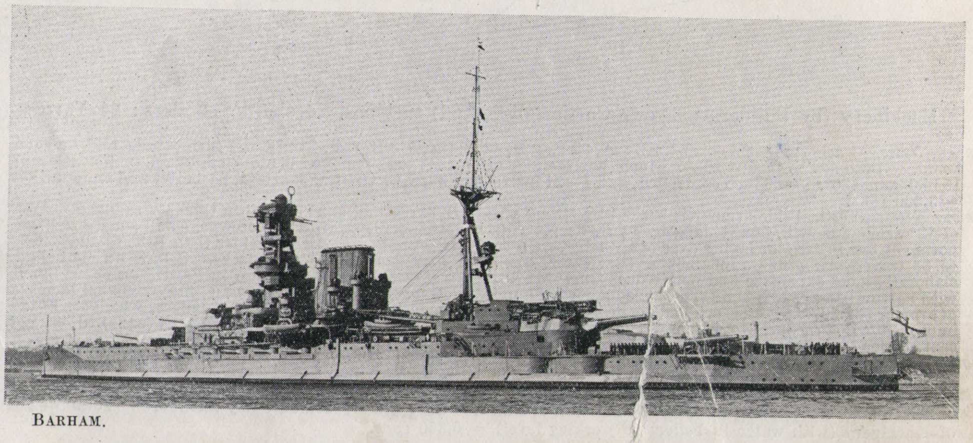


Malaya.

*"Fighting Ships" Photos.*



Malaya.



Barham.

Guns:
8—15 inch, 42 cal.
12—5·5 inch, 50 cal.
4—4 inch AA.
4—3 pdr.
5 M.G.
10 Lewis.
(besides multi-M.G.
Torpedo tubes (21 inch)
2 *submerged* (P. & S.)
4 *above water* in pairs.
Aircraft:
1 to be added to equipment, with catapult, when next refitted.

+ **HOOD*** (J. Brown & Co., Clydebank. Begun 1st Sept., 1916, Launched 22nd August, 1918, completed 5th March, 1920.)

24.5.41 D

Displacement, 42,100 tons (46,200 tons *full load*). Complement, 1341.

Length {*p.p.* 810 ft. / *o.a.* 860 ft. 7 in.} Beam *outside bulges* 105 ft. 2½ in. Draught {*mean* 28½ ft. / *max.* 31½ ft.

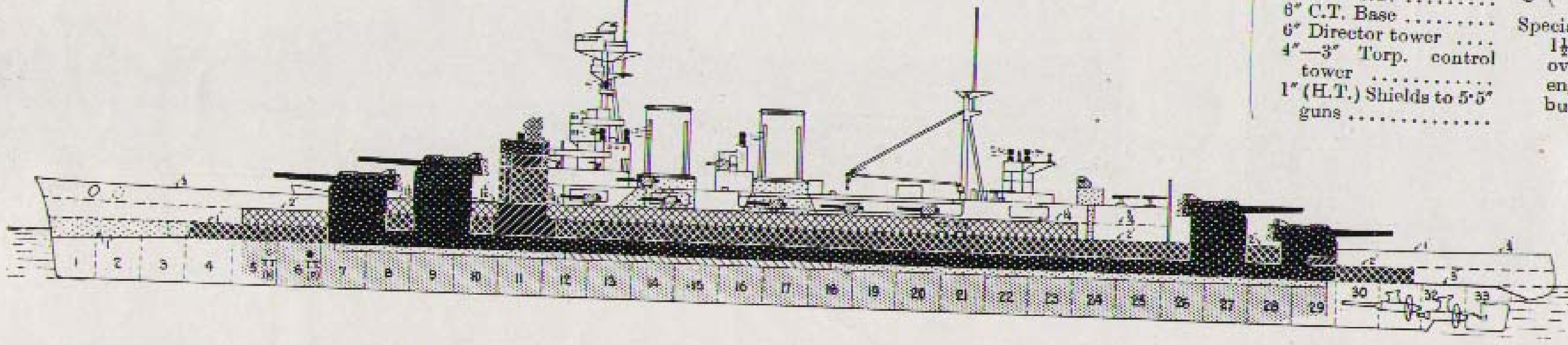
*Fitted as Flagship

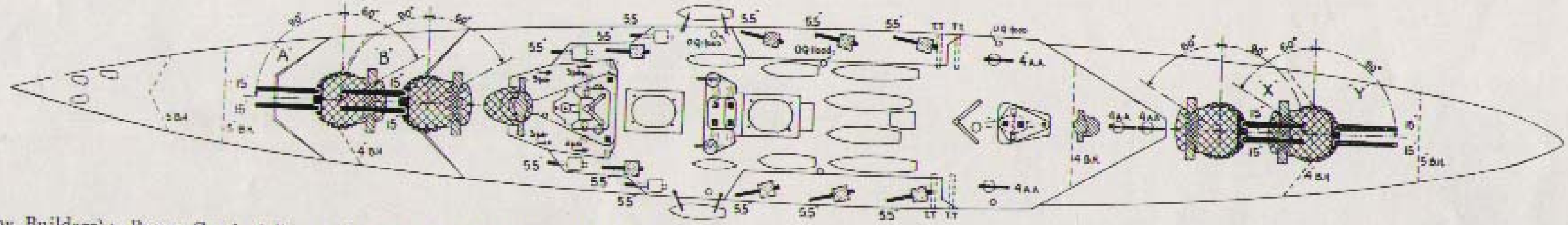
*Notes to Plan.*—Combined thicknesses of side armour and conning tower shown by dark patch in section 11. Now carries flagstaffs on both masts, with gaff on main.

Armour (K.C.):
Vertical.
3" Side (submerged)
12", 7", 5" Side (amidships)
6"—5" Side (forward)
6" Side (aft)
5"—4" Bulkh'ds (f. & a.)
12" Barbettes
15" Face } Turrets
12"—11" Sides } Turrets
11" & 9" C.T.
6" C.T. Base
6" Director tower
4"—3" Torp. control tower
1" (H.T.) Shields to 5·5" guns

Armour (H.T.):
Decks.
2" Forecastle
1" U.D. amidships
1½"—3" Main deck
3" M.D. over magazi
1½"—1" L.D. forwar
3"—1" L.D. aft
Crowns.
3" Director tower
5" C.T.
3" Torpedo control T
5" Turrets

Special protection (H.T.):
1½" and ¾" Torp. pro. b
over magazines, boiler
engine rooms, bulges
buoyancy spaces.





Machinery (by Builders): Brown-Curtis (all-geared) turbines. 4 shafts. Boilers: 24 Yarrow (small tube). Designed S.H.P. 144,000 = 31 kts. Oil fuel: 1200 tons *normal*, 4,000 tons *maximum*.

*Gunnery Notes.*—Barbette heights over l.w.l.: A, 32 ft.; B, 42 ft.; X, 31½ ft.; Y, 21½ ft. All turrets bear 150° on each
beam. Designed to mount 16—5·5 inch, but the four after guns were removed before completion. Elevation of
15 inch guns, 30°. 8—36 inch controlled, and 4—24 inch signalling S.L. Guns, mountings, barbettes and ammunition
= 5,300 tons.

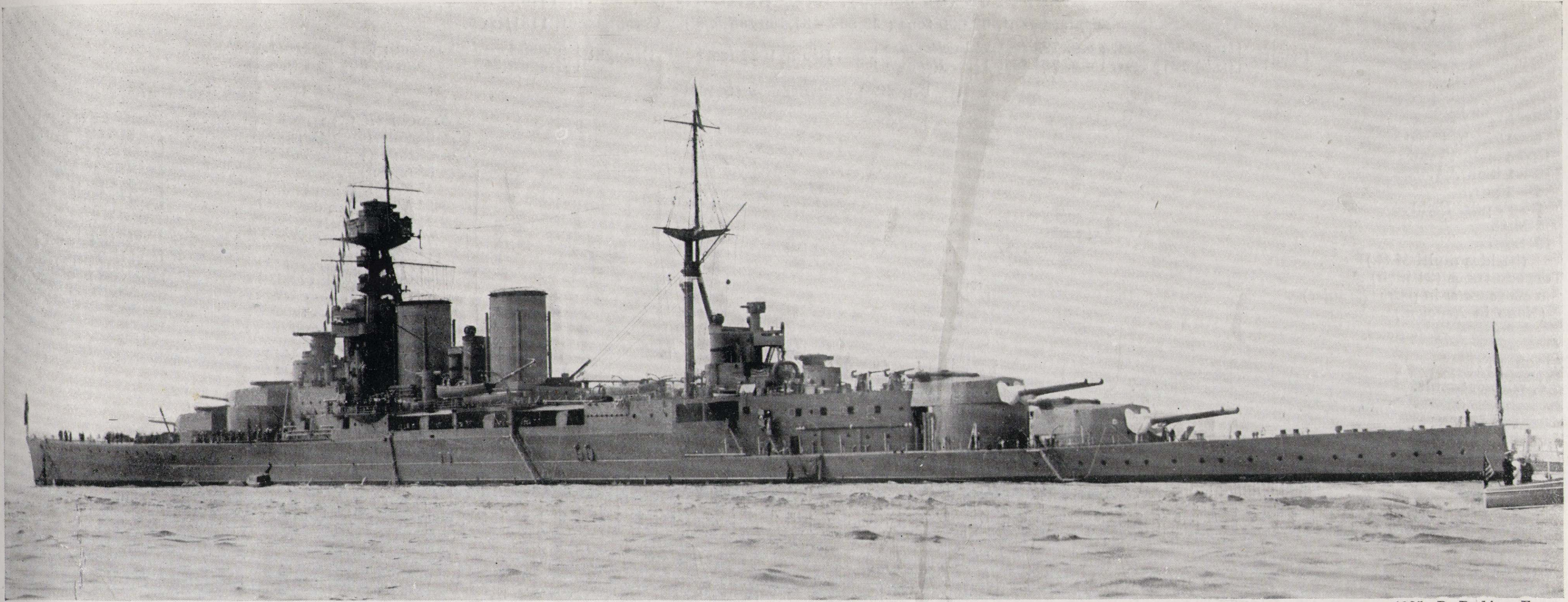
*Armour Notes.*—Vertical side armour is backed by strong 2"—1" H.T. plating, not included in thicknesses given. Area
of 12" armour at w.l., 562 ft. long by 9½ ft. deep. Gun houses, new type with flat crowns, small square sighting
ports cut low in face for laying over open sights. On roofs, armoured cases slightly wider than R.F. to allow R.F.
to be traversed for fine adjustments. Barbettes, 6"—5" as they descend through decks. C.T. is an enormous,
elaborate, most expensive and ponderous structure; in upper stages, it consists of two shells, 12" outer, 9" inner,
with narrow passage between. The slope inboard of hull side detracts from effects of plunging fire by virtual increase
of armour thickness. A perpendicular, dropped from topsides, just meets outer edges of bulges, which are of the
improved "D'Eyncourt-Hopkinson" type. Total weight of armour and protection, 13,800 tons (equal to 33⅓ per
cent. of load displacement).

*Engineering Notes.*—During world cruise, economical speed worked out at 288 miles in 24 hours on 180 tons of oil, i.e.,
7½ tons an hour, ·625 ton per mile run.

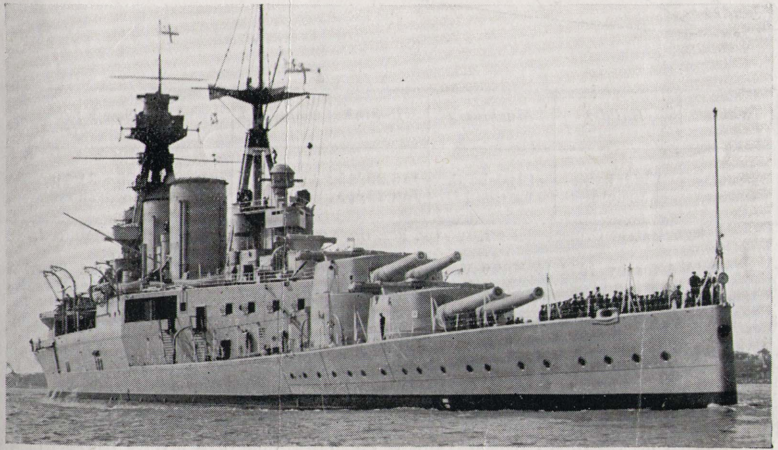
*Trials* (unofficial figures).—At 42,200 tons, 151,000 S.H.P. = 32·07 kts. (run in bad weather, wind force 6 Beaufort scale)
on Arran mile. At 44,600 tons, 31·8 kts. *mean* attained. On ¾ power, 25 kts. easily secured. Total weight
of machinery (with water in boilers to working level) = 5,350 tons.

*Notes on Original Design.*—The original 1915 Design embodied same length and beam, but draughts were 25½ feet *normal*
= 36,300 tons, and 29 feet deep. Speed: 32 kts. Belt 8", barbettes 9", much thinner deck armour, and only
2—21 inch *submerged* T. T. Four ships ordered to this design April, 1916. In the design produced after Jutland
(not approved till 1917), 5,000 tons extra protection was worked in. By use of small-tube boilers, 24,000 S.H.P.
gained on *same* machinery weights as for *Renown* class.

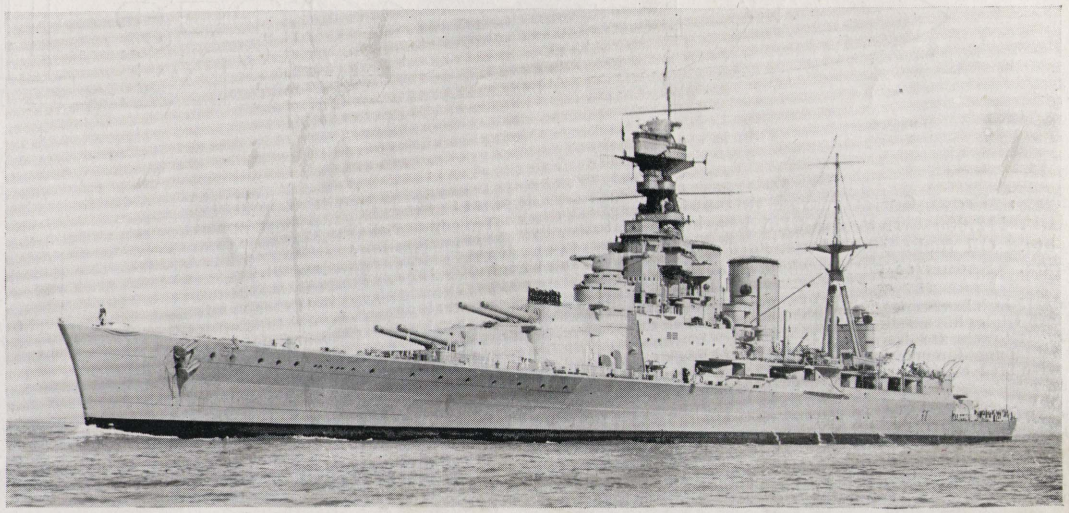
*General Notes.*—Begun under Emergency War Programme. Originally, there were four ships in this class, *Anson*, *Hood*,
*Howe*, *Rodney*. They were begun in the autumn of 1916, to meet the German Battle Cruisers, *Graf Spee*, *Mackensen*,
*Ersatz Freya* and *Ersatz "A,"* which were laid down in 1916. Contractors were: *Anson* (Armstrong), *Howe* (Cammell
Laird), *Rodney* (Fairfield), *Hood* (Brown). The enemy having ceased work on all his large ships, in 1917, *Anson*,
*Howe* and *Rodney* were stopped in March, 1917, and dismantled to clear slips after the Armistice, but not before
£860,000 had been expended on them. These ships were redesigned to meet the lessons of Jutland. In *Hood*,
the outstanding feature is the huge areas covered by heavy armour, strong framing, &c.—in fact, the general scheme
of protection is most comprehensive. Cost, *about* £6,025,000=£145 per ton. Annual upkeep, £390,000, including
indirect personnel charges; without these it is £274,000. General refit, 1929-30. Carried catapult and aircraft on
quarterdeck in 1931.



HOOD. 1935, *R. Perkins, Esq.*



HOOD 1936, *Cribb.*



HOOD 1936, *Cribb.*

(Renown Class.)

10.12.41

## + REPULSE (8th January, 1916), RENOWN (4th March, 1916).

Displacement, 32,000 tons ( 36,800—37,400 *full load*). Complement, 1181/1205.

Length (*p.p.*) 750 feet. (*w.l.*) 787¾ feet. *o.a.* 794 feet 2½ in. *Repulse*; *o.a.* 794 feet 1½ in. *Renown*

Beam 102⅔ feet†

Draught *Repulse* — feet (*mean*), 31¾ feet (*max.*); *Renown* 26⅔ feet (*mean*), 30¼ feet (*max.*)

Both fitted as flagships †Outside bulges.

Guns:
6—15 inch, 42 cal.
12—4 inch, 40 cal.
8—4 inch AA.
4—3 pdr.
1—12 pdr. Field
5 M.G.
10 Lewis
(besides multi-M.G.)
Torpedo tubes (21 inch):*
8 *above water* in pairs (*Repulse*)
(None in *Renown*.)

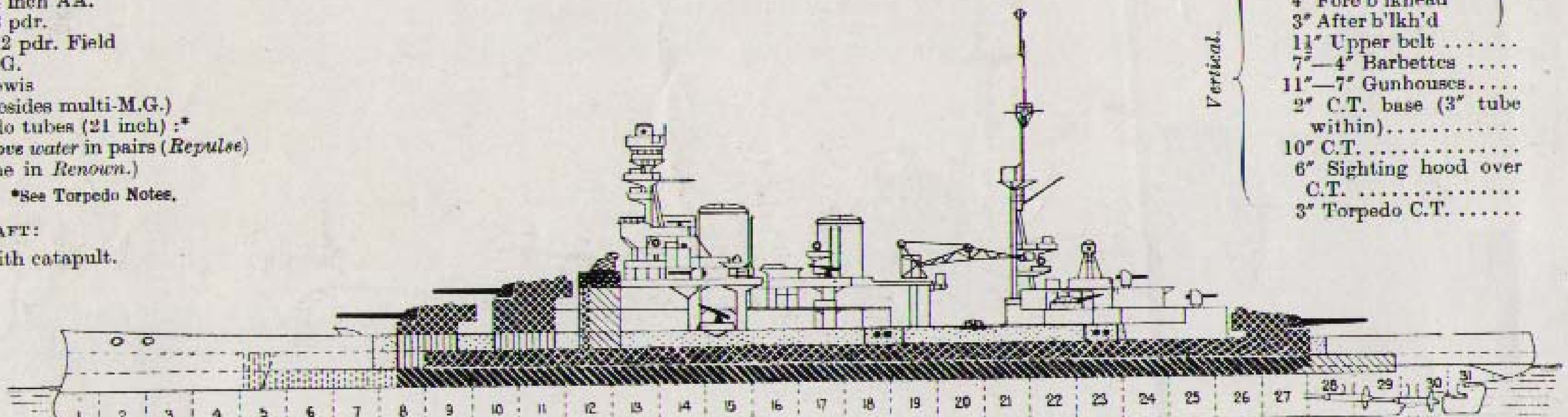
*See Torpedo Notes.

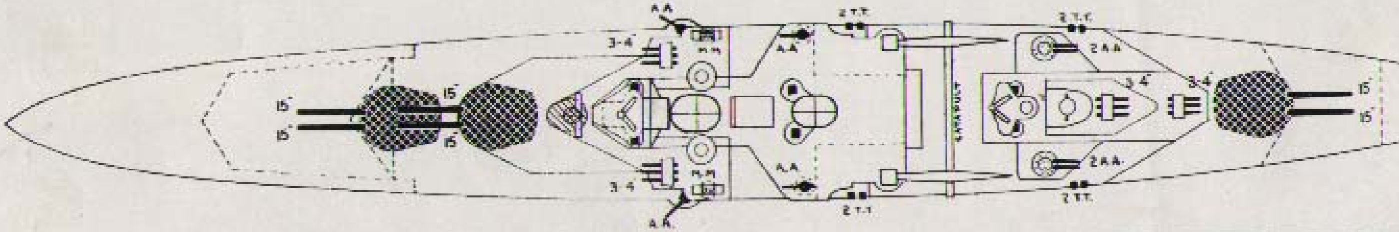
Aircraft:
4, with catapult.

(See Armour Notes.)

Armour (K.C.):
*Vertical.*
9"—6" Side (amidships) } Lower belt
6"—4" Side (within bow) } Lower belt
3" (stern) } Lower belt
4" Fore b'lkhead } Lower belt
3" After b'lkh'd } Lower belt
1½" Upper belt .......
7"—4" Barbettes .....
11"—7" Gunhouses.....
2" C.T. base (3" tube within)............
10" C.T. ...............
6" Sighting hood over C.T. ...............
3" Torpedo C.T. ......

Armour (H.T.):
*Decks*
1½"—½" Fo'xle........
⅞"—1½" Upper .......
3"—¾" Main (2" slopes)
2½" Bow } Lower
3½"—3" Stern } Lower
*Crowns*
—" Barbettes .........
3" C.T. and hood .....
1½" Torpedo C.T. .....
Special protection:
Modified bulges.......





Machinery: Brown-Curtis geared turbines. 4 shafts. Boilers: 42 Babcock & Wilcox. Designed H.P. 112,000 S.H.P. for 31·5 kts. before alterations. In service, present best speed about 28 kts. Oil fuel: 1000 tons *normal; Repulse* 4243 tons *maximum; Renown* 4289 tons *maximum*. Radius of action, *about* 3650 miles. Tactical diameter: 4½ times length.

| *Name* | *Builder* | *Machinery* | *Begun** | *Completed* | *Trials: H.P. kts.* |
|---|---|---|---|---|---|
| *Repulse* | Clydebank | Clydebank | Jan.25,'15 | Aug.,1916 | 119,025=31·7† |
| *Renown* | Fairfield | Fairfield | Jan.25,'15 | Sept.,1916 | 126,300=32·68 |

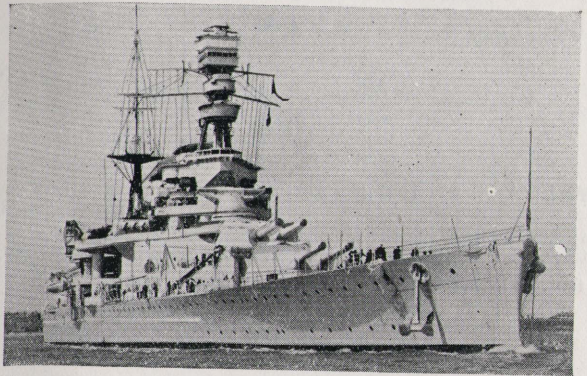
*To Battle Cruiser design. †30 kts. on Arran mile after being re-armoured.

*Gunnery Notes.*—15-inch have range only limited by maximum visibility and director tower is under control tower on foremast. 4 inch triples have 2 director towers, and all guns can be worked from either tower or half the 4-inch from one tower. If towers are destroyed, 4-inch can work independently. 4-inch triples are clumsy and not liked. They are not mounted in one sleeve; have separate breech mechanism; gun crew of 23 to each triple. It is said that first salvo fired by forward 15-inch of *Renown* did considerable damage forward, and she had to be docked for repairs.

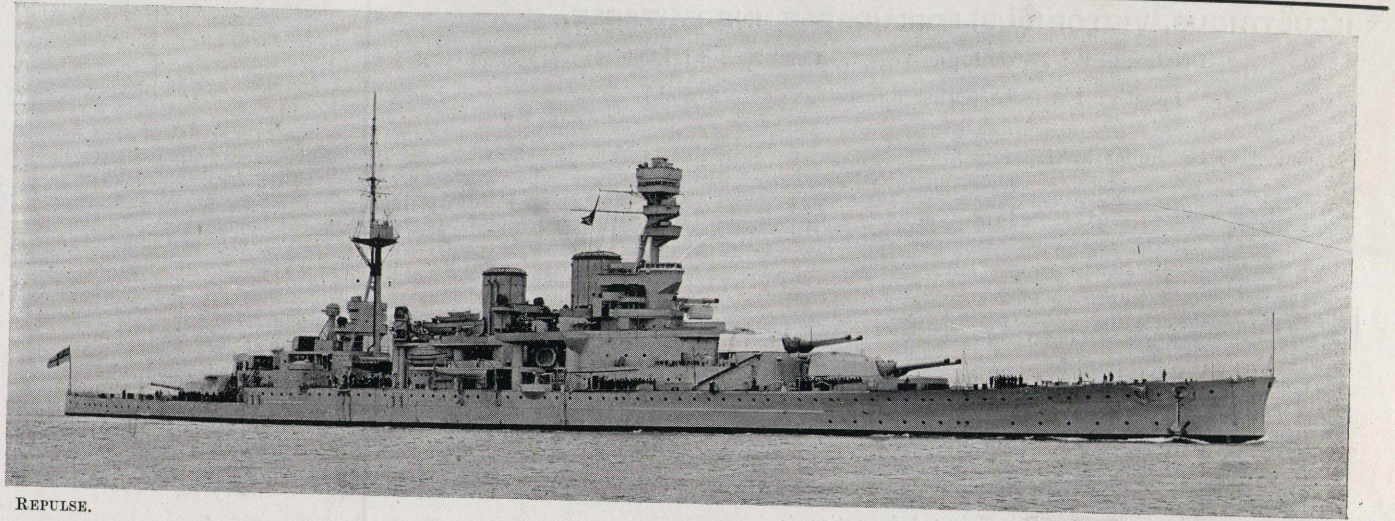
*Torpedo Notes.*—*Repulse*, on 1919 re-fit, had 8 *above water* tubes in 4 twin mountings fitted on main deck above sections 18 and 23.

*Armour Notes.*—Armouring adapted from *Invincible* and *Indefatigable* classes. On re-fit 1919-20, *Repulse* re-armoured on w.l. with 9" K.C. and 6" K.C. between main and upper decks, extending over sections 8-27 on plans. Belt, *about* 9 ft. deep.

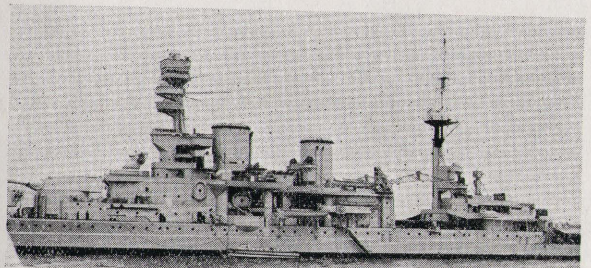
*General Notes.*—Provided for by 1914-15 Navy Estimates; first designed as slightly modified *Royal Sovereigns*, contracted for on that basis, and begun 1914, but building was not pushed on actively after the outbreak of War. After the Falklands Battle it was decided that these two ships should be re-designed as Battle Cruisers. Outline design was prepared in ten days, and builders received sufficient details by January 21st, 1915, to begin building, but full designs were not finished and approved till April, 1915. Intended that they should be completely built in fifteen months, but this time was somewhat exceeded. Both ships have turned out remarkably well and reflect great credit on their designers and builders. Costs: *Repulse*, £2,829,087; *Renown*, £3,117,204; but former total is not inclusive of all charges. Refits: *Renown* (1919-20), £100,738, (1921-22) £175,518. *Repulse* (1918-22), £860,684. *Renown* re-constructed, 1923-26, with addition of conspicuous bulge; bridge built up abaft fore tripod, as in *Revenge*; heavy upper control top on foremast and short topmast removed. *Repulse* was re-constructed 1932-36 at a cost of £1,377,748. On her completion, *Renown* was taken in hand for similar renovation, new machinery having been ordered for her from Cammell, Laird & Co., Ltd. Alterations involve increase of A.A. armament, provision of hangars, cranes and catapult, and a new system of boat stowage, and will be completed in 1939.



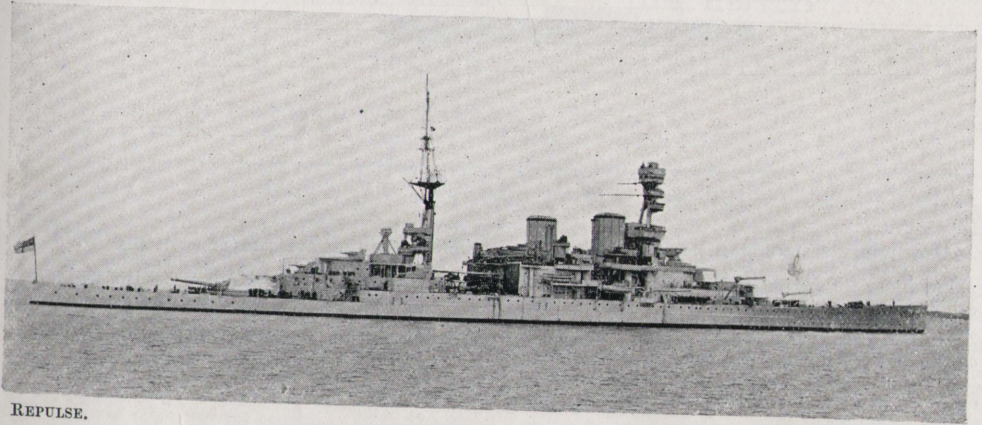
Repulse. 1936, *Cribb.*



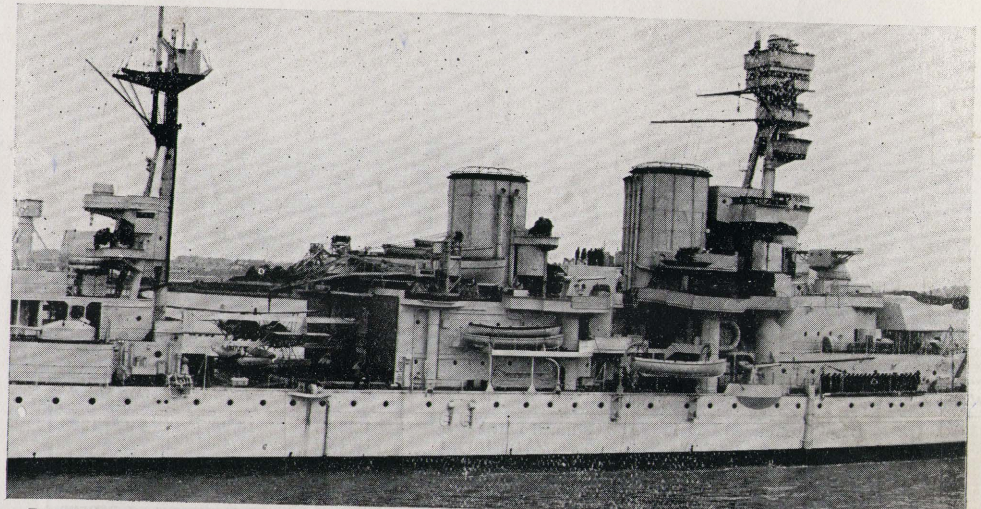
Repulse. 1936, *Wright & Logan.*



Repulse. 1937, "*Fighting Ships.*"



Repulse. 1936, *Wright & Logan.*



Repulse. 1936, *Wright & Logan.*

(COURAGEOUS CLASS—2 Ships).

17.9.39

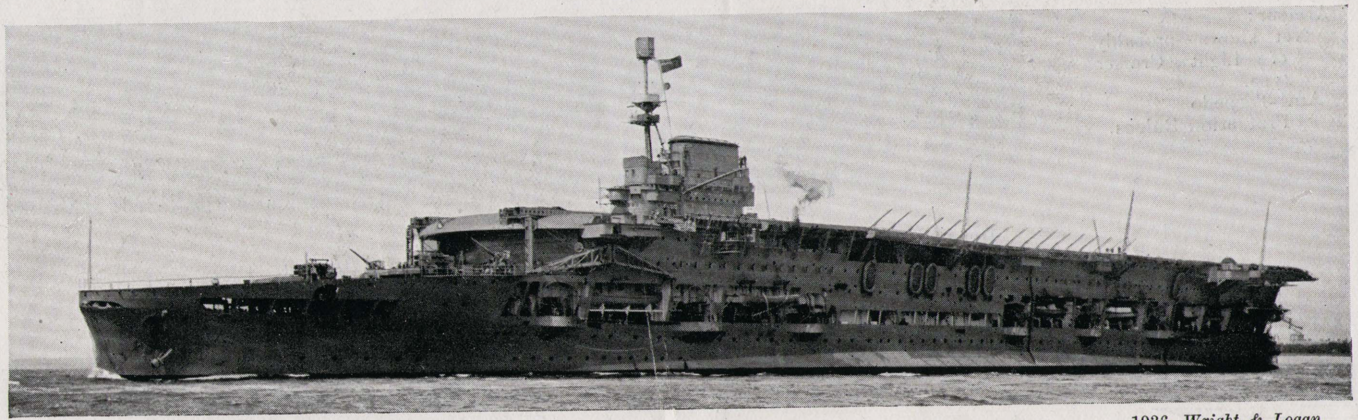
+ **COURAGEOUS** (5th February, 1916), + **GLORIOUS** (20th April, 1916). (Late Cruisers.) D 8.6.40

Displacement, 22,500 tons (*about* 26,500 tons *full load*). Complement, 748 (including R.A.F. personnel, 1216)

Length { *p.p.* 735 ft. / *o.a.* 786¼ ft. Beam { (outside bulges), 81¼ ft. / (across flight deck) 100 ft. Draught { *mean* 22⅙ ft. / *max.* 28⅓ ft.

Guns:
**16**—4·7 inch (HA. or LA.)
**4**—3 pdr.
**21** Smaller.

Aircraft Squadrons:
(Official complement is 48 aircraft).



COURAGEOUS.

1936, *Wright & Logan.*

Armour:
3″ Side (amidships) . . .
2″ Side (forward) . . . .
2″ (H.T.) Fore bulkhead
3″—1″ (H.T.) After Bulkhead . . . . . . . . .
1½″ Side at upper deck level.
1″ Upper deck . . . . . . .
1½″ Lower (stern, flat)
3″ Lower (stern, over rudder) . . . . . . . . . . .
2″ Lower (on slopes) . .
Torpedo protection (H.T.):
Modified bulges 25 ft. deep . . . . . . . . . . . . . .
¾″ Inner screen to boiler and engine room vents.

Machinery: Parsons (all-geared) turbines. 4 shafts. Boilers: 18 Yarrow (small tube). Designed H.P. 90,000 = 30 kts. Oil fuel: *normal*, 3,550 tons; *maximum*, 3,940 tons.

*Armour Notes.*—General scheme of armouring on Cruiser lines, the 3″ belt being built up of 2″ plating on 1″ shell plating. Decks round magazines thickened during completion.

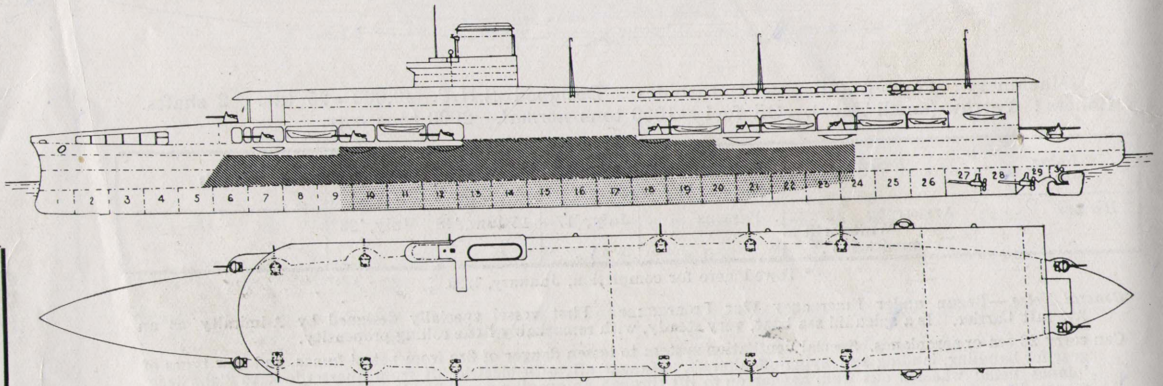
*Engineering Notes.*—General arrangement of machinery as in Cruiser *Champion*. 4-shaft geared turbines and double helical gearing. Have done 32 kts. in service.

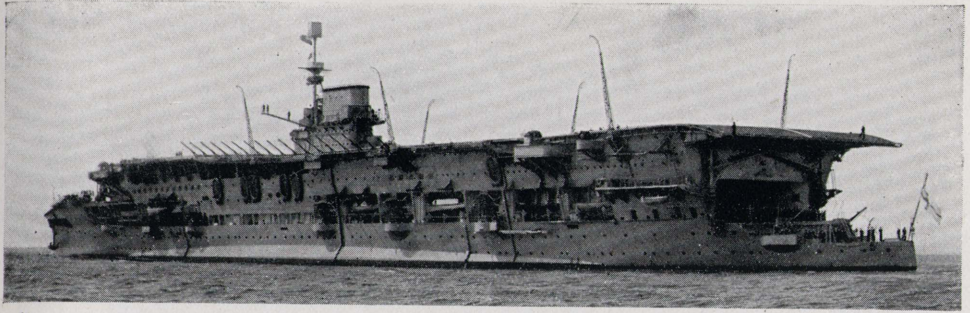
*General Notes.*—Emergency War Programme ships. Original cruiser design formulated by Lord Fisher in 1915, with a view to Baltic operations—hence the shallow draught. The lines are remarkably fine. On trials, *Courageous* met heavy weather and was driven into a head sea, straining her hull forward. Doubling plates were added here, and subsequent trials showed the defect had been overcome. *Glorious* strengthened in the same way a year later as a precautionary measure. First cost of *Glorious*, £2,119,066; increased by alterations to nearly three millions. *Courageous* and *Glorious* taken in hand for conversion into aircraft carriers at Devonport (June, 1924 and Feb., 1924 respectively). Work on *Glorious* was started at Rosyth, but on that yard being closed she was towed to Devonport for completion. *Courageous* completed 5 May, 1928, her conversion having cost £2,025,800. *Glorious* completed January, 1930. Flight decks are 480 ft. long

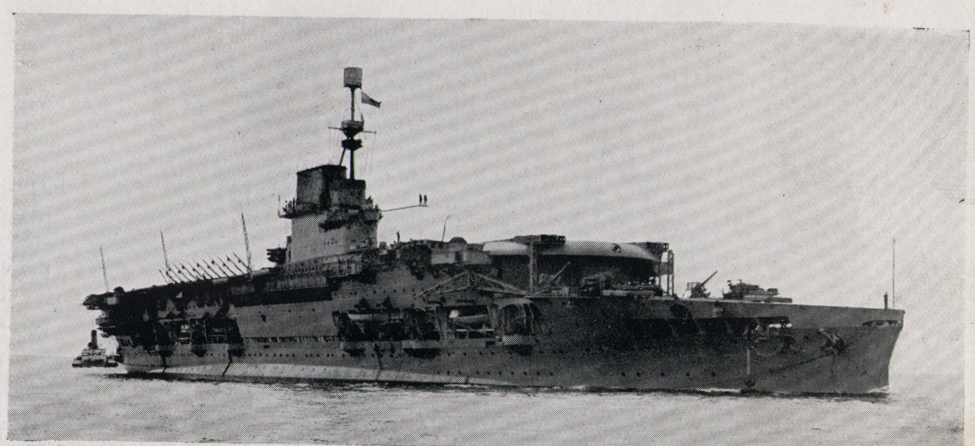
*Appearance Notes.*—*Courageous* refitted 1936, with light tripod mast on superstructure. *Glorious* has had her quarter deck raised a deck higher than in *Courageous*, and has no charthouse before funnel. Tail of flight deck was extended aft to stern during refit, 1934–35.

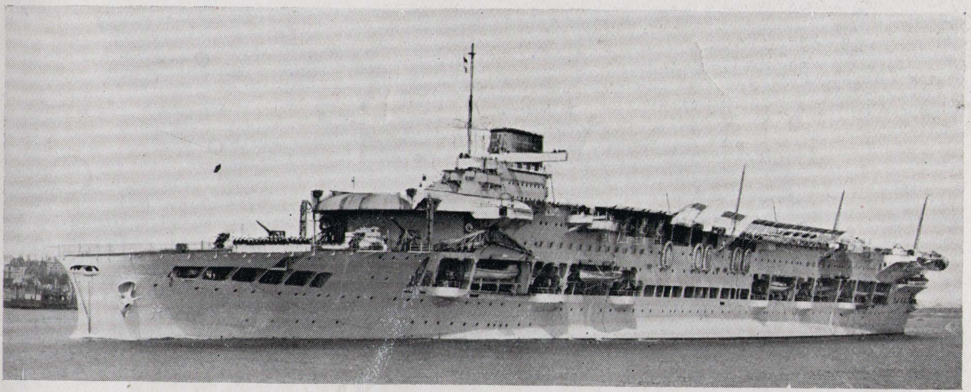
| *Name* | *Builder* | *Machinery* | *Begun* | *Completed* | *Trials* |
|---|---|---|---|---|---|
| *Courageous* | Armstrong | Parsons | May, 1915 | Jan., 1917 | 93,780 = 31·58 |
| *Glorious* | Harland & Wolff, Belfast | Harland & Wolff | Mar., 1915 | Jan., 1917 | 91,165 = 31·6 |

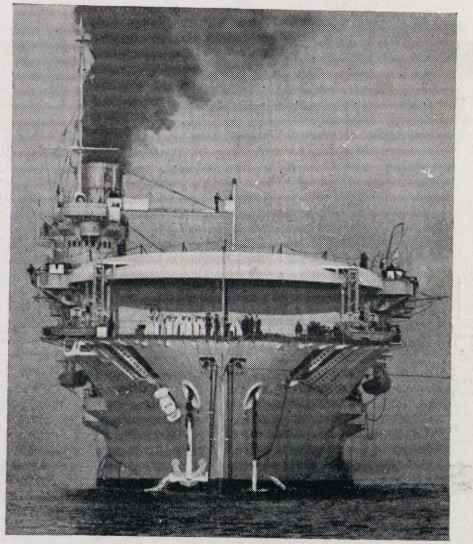
*Note to Plan.*—3 pdr. guns mounted beneath flight deck forward. Carries 2 multiple A.A. mounts on forward flight deck and one immediately abaft island superstructure.

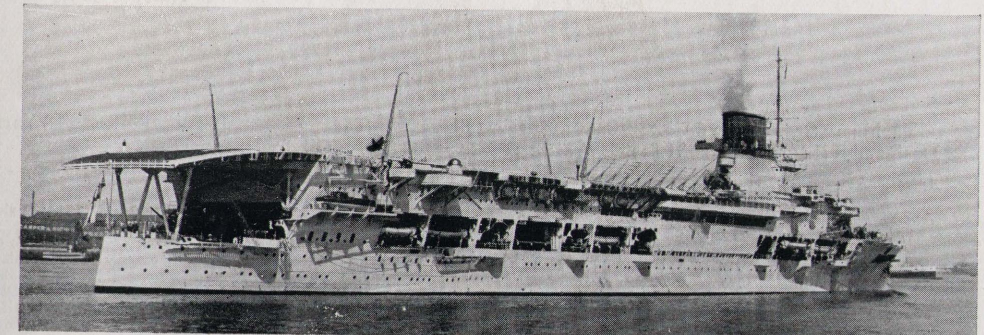



COURAGEOUS. 1936, *Wright & Logan.*

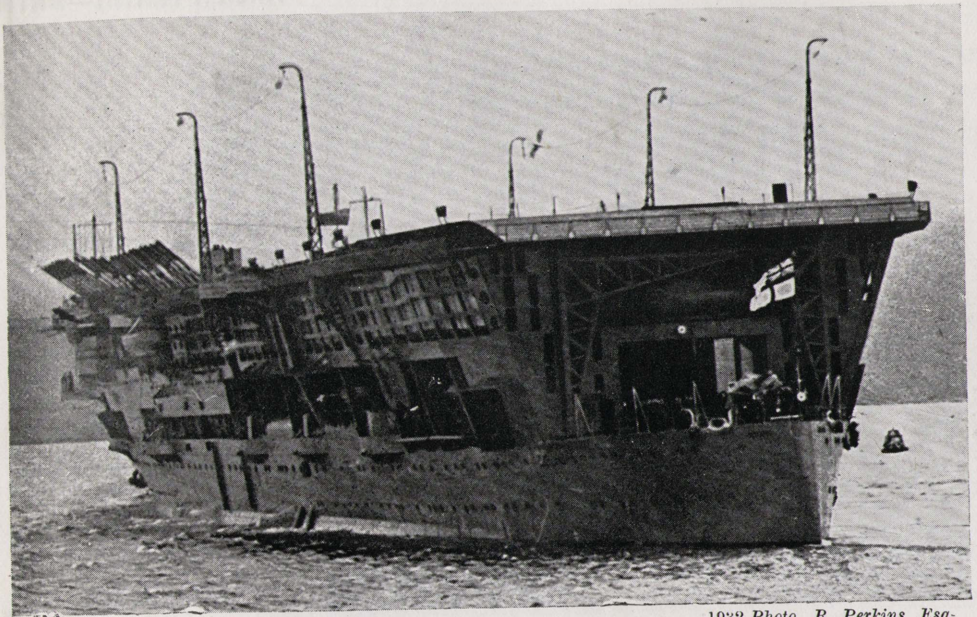

COURAGEOUS. 1936, *Cribb.*


GLORIOUS. 1935, *Cribb (added 1936).*


GLORIOUS. 1930 *Photo, Abrahams, Devonport.*


GLORIOUS. 1935, *Wright & Logan.*

In "Glorious" quarter deck has been raised flush with upper deck, and flight deck extended in a downward curve above it.



1932 *Photo, R. Perkins, Esq.*

FURIOUS.

**FURIOUS** (15 August, 1916). Late Cruiser.

Displacement, 22,450 tons. Complement, 748 (about 1,200 with R.A.F. personnel.)

Length, (*p.p.*) 735 feet, (*o.a.*) $786\frac{1}{4}$ feet. *Beam, $89\frac{3}{4}$ feet. Draught { *mean* $21\frac{2}{3}$ feet. *max.* 25 feet.

III-46 исключен из списков фл. На слом

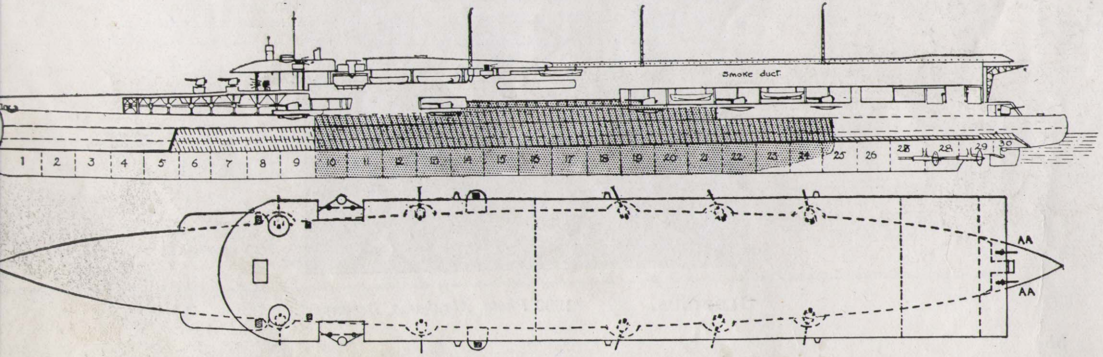
*Outside bulges.

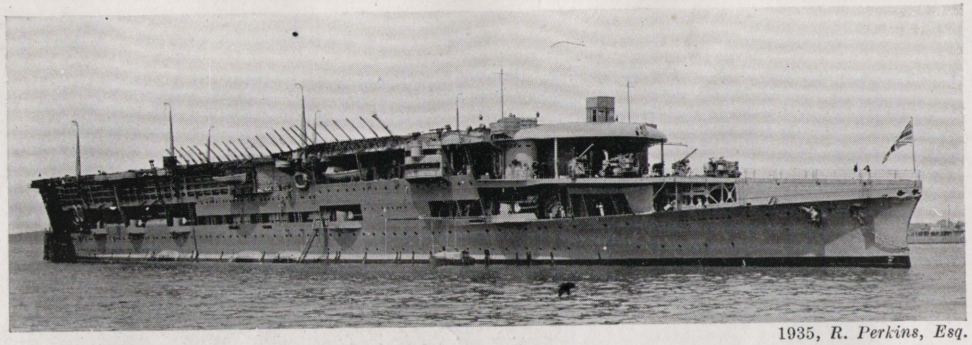
ns :
0—5·5 inch, 50 cal.
3 —4 inch AA.
0 Smaller.
rcraft :
(Official complement, 33)

NOTE TO PLAN.

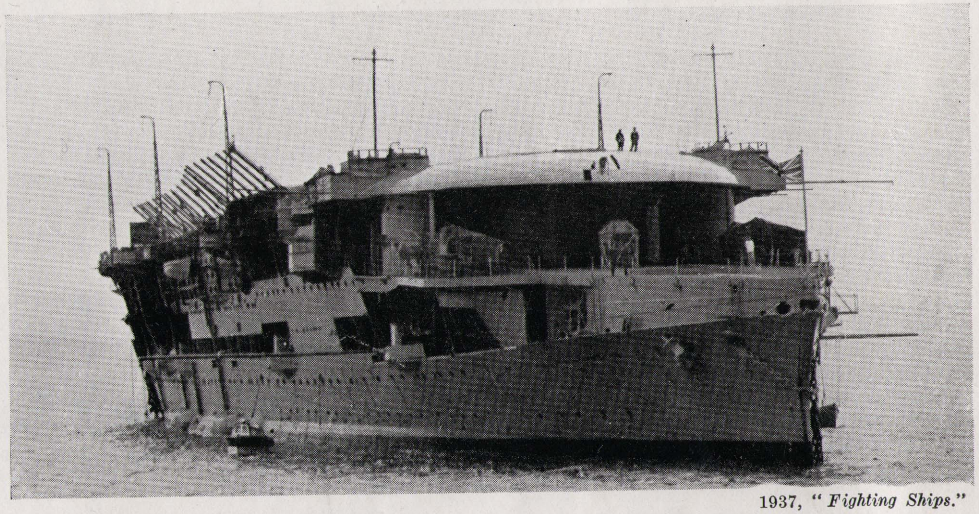
Quarter deck raised one deck during refit, 1931. Only 3—4 inch AA. now mounted, two on fo'csle and one in centre line on q.d. No shields to these guns. 2 multiple AA. mounts on forecastle.

Armour:
3″ Belt (amidships)................
2″ Belt (bow). .....................
3″—2″ Bulkheads F. & A..........
1″ Decks (H.T. at stern)..........
3″—$1\frac{1}{2}$″ Decks (H.T. at stern)...
Anti-Torp. Pro.
Shallow bugles ......................
1″ H.T. vertical. ....................





1935, *R. Perkins, Esq.*

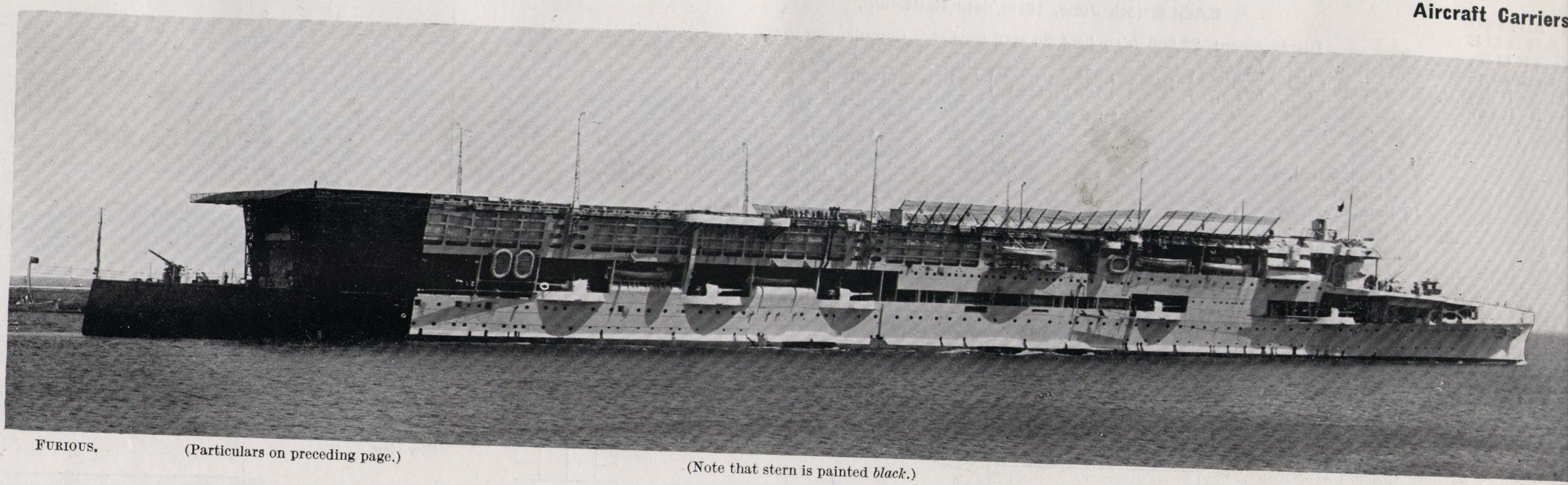


1937, *"Fighting Ships."*

Machinery (by Wallsend Co.): Brown-Curtis (all geared) Turbines. 4 shafts. Boilers: 18 Yarrow. Designed S.H.P. 90,000 = 31 kts. *Trials*: 90,820 = 30 kts. Oil fuel: 4010 tons.

***Armour Notes.*—3″ Belt consists of 2″ plating over 1″ shell plating, as in Light Cruisers.**

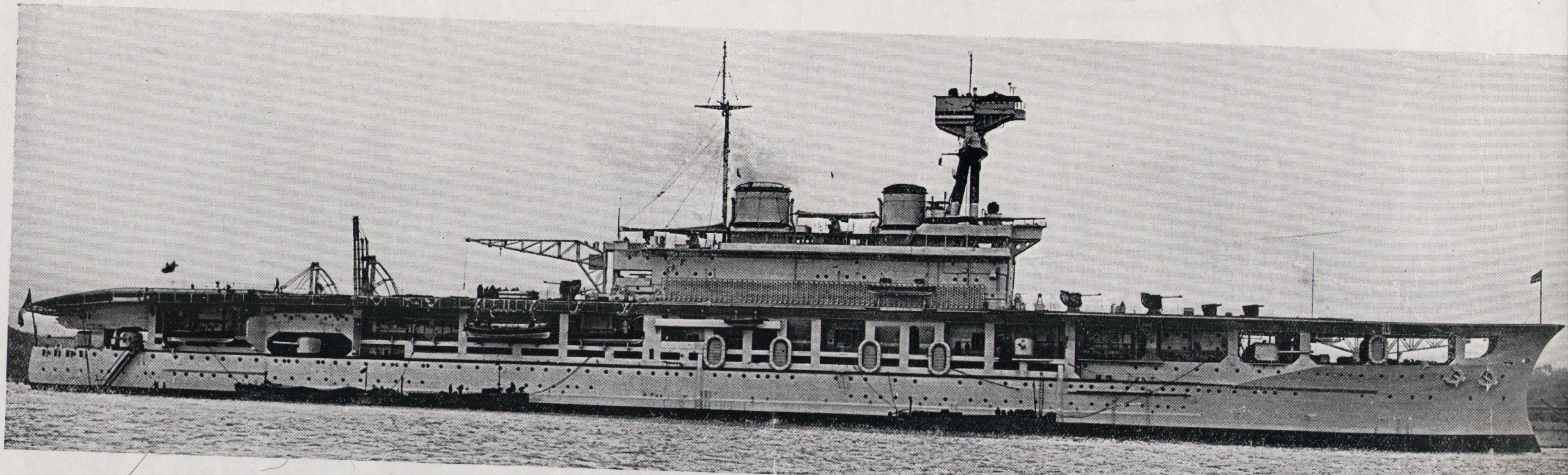
*General Notes.*—Built under Emergency War Programme, by Armstrong Whitworth. Begun June, 1915; prior to completion, forward 18 inch turret suppressed and replaced by a forward flight deck. Completed July, 1917. Rebuilt between Nov., 1917 and March, 1918. Originally intended to be a modified *Courageous*, with 18 inch guns, forward and aft. During reconstruction, 1917–18, after 18 inch gun was removed and replaced by flight deck entailing removal of mainmast. Since conversion, she is said to be rather light, and is good now for 32–33 kts. Including cost of alterations, this ship is said to have absorbed over six million pounds. Underwent re-fit and alteration at H.M. Dockyards, Rosyth and Devonport, 1921–25, after which her appearance was completely altered, the funnel and mast being removed and a new hangar built forward. Smoke is discharged from vents at after end of hangar, or alternatively through flight deck, which measures 700 × 80 feet. Height of flight deck from water line is 75 feet. There are 2 hydraulic lifts from hangars to flight decks.



FURIOUS. (Particulars on preceding page.)

(Note that stern is painted *black*.)

1935, *Grand Studio, M*



EAGLE (Particulars on following page.)

1931 *Photo, R. Perkins, Esq.*

**ote.—2 old aircraft carriers, ARGUS and PEGASUS, relegated to training duties, will be found on a later page.**

## + EAGLE (8th June, 1918), late Battleship. 11.8.42

Displacement, 22,600 (*deep load*, 26,400) tons. Complement, 748.

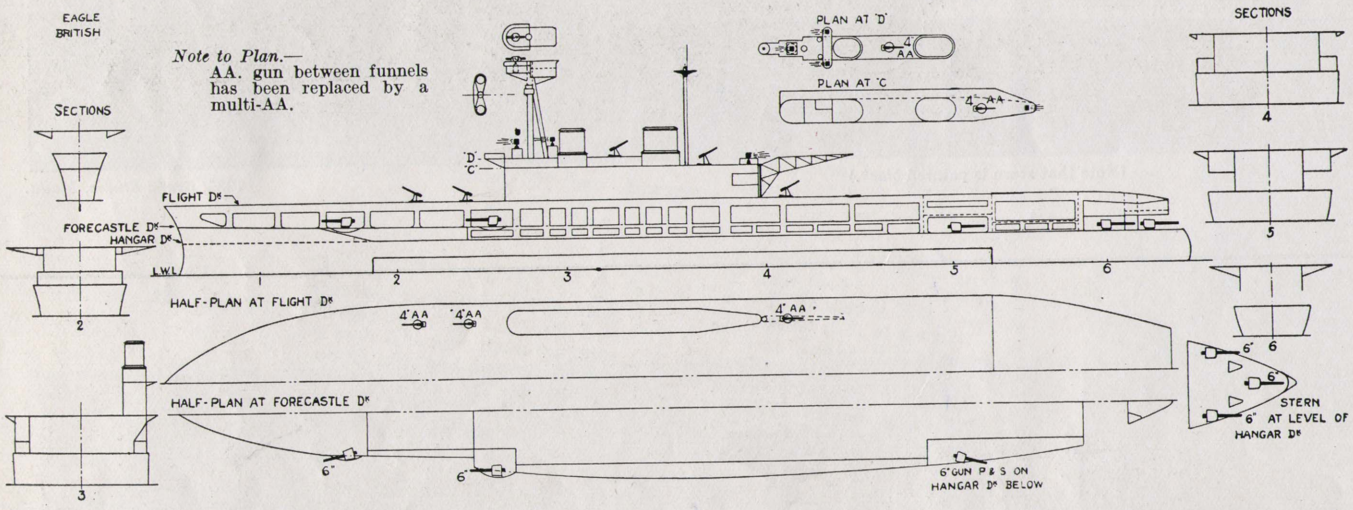
Length { (*p.p.*) 625 feet / (*o.a.*) 667 „ } Beam { 92¾ / 105⅙ (*max.*) } feet.* Draught { 24 feet *mean.* / 27 feet *max.* }

* 100 feet, flight deck.

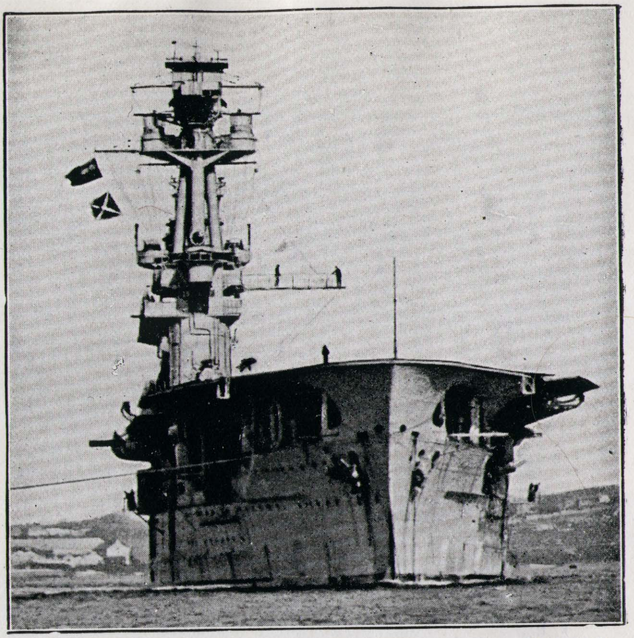
Guns:
9—6 inch, 50 cal.
4—4 inch AA.
19 Smaller.

Aircraft:
Official complement is 21.

Armour:
..." Side (amidships)......
..." Deck ........... ......
Special protection:
Bulges over about four-fifths of length, projecting about 6 feet from side.


EAGLE
BRITISH
SECTIONS
2
3
PLAN AT 'D'
4" AA
PLAN AT 'C'
4" AA
'D'
'C'
FLIGHT DK
FORECASTLE DK
HANGAR DK
L.W.L.
1
2
3
4
5
6
HALF-PLAN AT FLIGHT DK
4" AA
4" AA
4" AA
HALF-PLAN AT FORECASTLE DK
6"
6"
6" GUN P & S ON HANGAR DK BELOW
SECTIONS
4
5
6
6"
6"
6"
STERN
6" AT LEVEL OF HANGAR DK

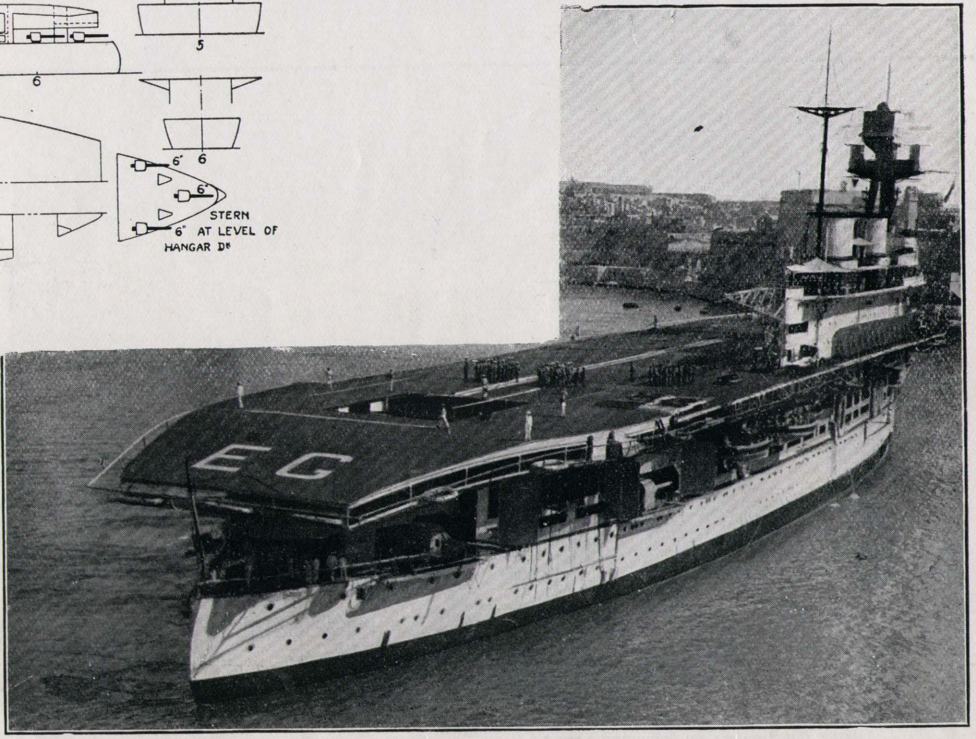
*Note to Plan.*—
AA. gun between funnels has been replaced by a multi-AA.



Bow view. *Devonport.*

Machinery: Brown-Curtis (A.G.) turbines, by J. Brown & Co., Clydebank. Designed S.H.P. 50,000 = 24 kts. (No details available of trials). Boilers: 32 Yarrow. Oil fuel: *Normal*, 2500 tons; *maximum*, 3750 tons.

*General Notes.*—Designed and begun by Armstrong Whitworth, February, 1913, for Chile, as *Almirante Cochrane*, a Dreadnought Battleship and sister to Chilean *Almirante Latorre.* All work on this ship ceased in August, 1914, and she lay on her slip until 1917, when her purchase was negotiated with the Chilean Government. Her design was modified to an Aircraft Carrier by Sir E. H. Tennyson d'Eyncourt. Commissioned for ship and flying trials with one funnel and no masts, 13th April, 1920. As a result of trials made off Scilly Islands, put in hand at H.M. Dockyard, Portsmouth, for modifications, November, 1920. Finally completed in 1923. Bought from Chile for £1,334,358, sums subsequently expended have raised total cost to £4,617,636 (Statement by First Lord, April 1927). Refit 1932.



EAGLE. 1927 *Photo, Cassar.*

+ **EXETER** (July 18th, 1929). Devonport D.Y. 1.3.42 [illegible]

"Standard" displacement, 8390 tons. Complement, 600.

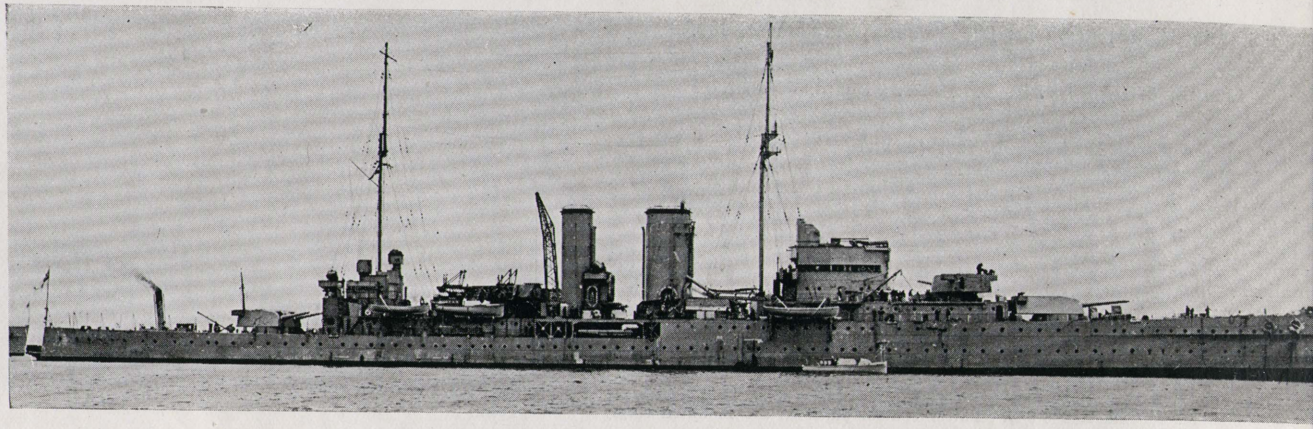
Length, 540 (*p.p.*), 575 (*o.a.*) feet. Beam, 58 feet. Draught, 17 feet (*mean*).

Guns:
- **6**—8 inch, 50 cal.
- **8**—4 inch AA.
- **4**—3 pdr.
- **14** smaller.

Torpedo Tubes:
- **6**—21 inch (tripled).

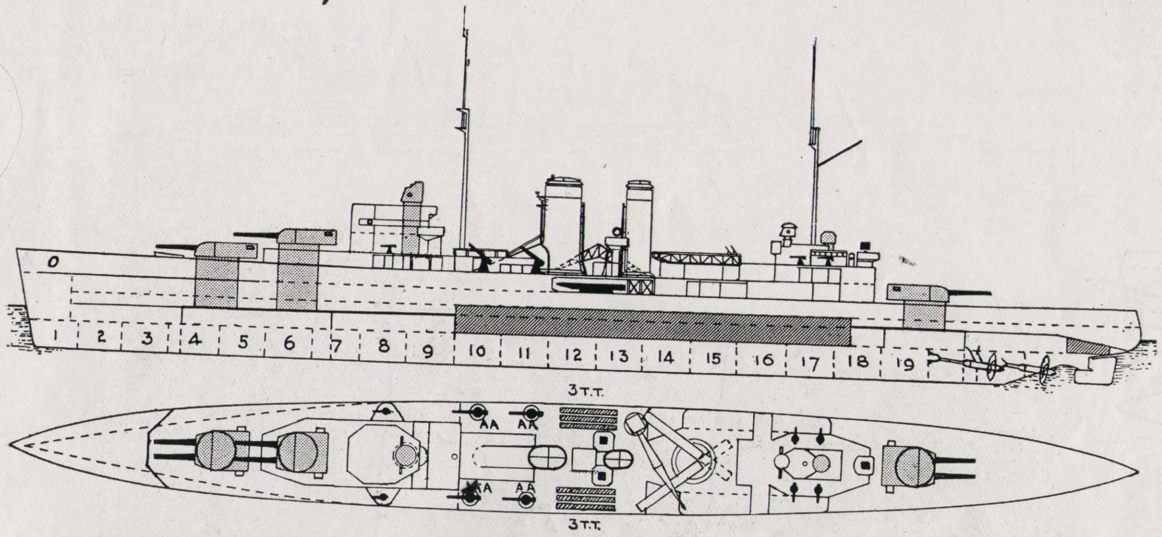
Aircraft:
- **2**—with 2 catapults.

Armour:
- 2″ Deck
- 3″ C.T.
- 2″—3″ Side at W.L.



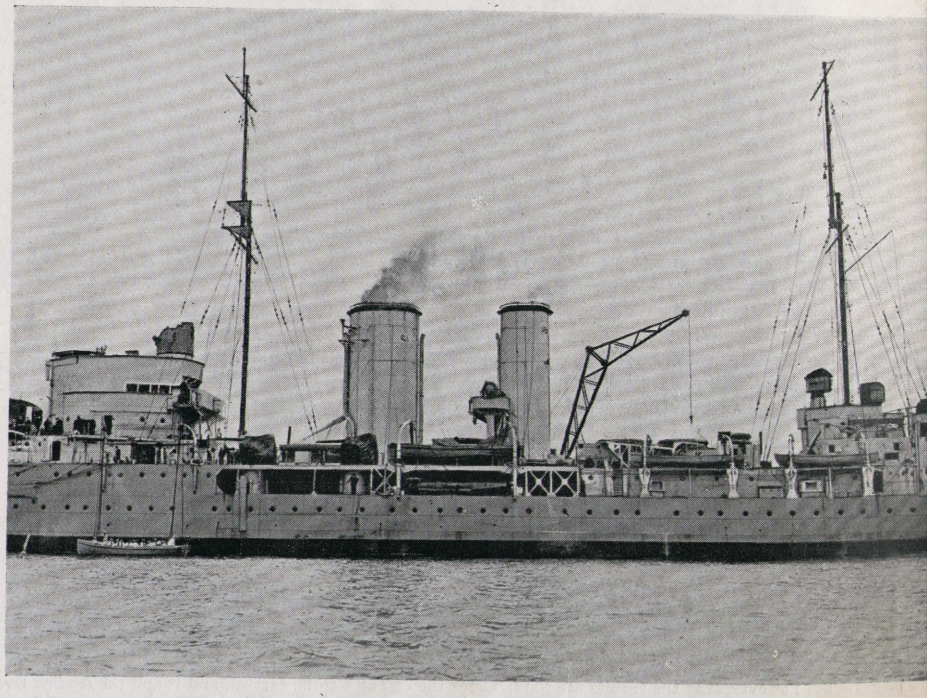
EXETER.

1933 *Photo, R. Perkins, Esq.*



Machinery: Parsons geared turbines. 4 shafts. Designed H.P. 80,000=32 kts. Oil fuel: 1900 tons. Radius, 10,000 miles at 11–14 kts. Boilers: 8 Admiralty 3-drum type.

*General Notes.*—Designed by Sir William Berry and laid down at Devonport in August, 1928. Completed in May, 1931. Design is similar to *York*, with an increase in beam of 1 foot. Was to have had three raking funnels and catapult on raised turret, with masts spaced as in *York*, but the foremost funnel was trunked into the second in order to improve the habitability of the bridge and save space and weight. The catapult on the second turret having been dispensed with, the bridge has been lowered so that the director is only 60 feet above water. Note the absence of wings to the bridge and the searchlight arrangement similar to that in the *Nelson* class. The absence of rake to the masts and funnels, and the thickening of the second funnel by 4 feet enables her to be distinguished without difficulty from the *York*.



(*Forecastle plating now extends to second A.A. guns.*)

1931 *Photo, R. Perkins, Esq*

+ **YORK** (July 17th, 1928). Palmers. | 29.5.41 [illegible]

"Standard" displacement, 8250 tons. Complement, 600.

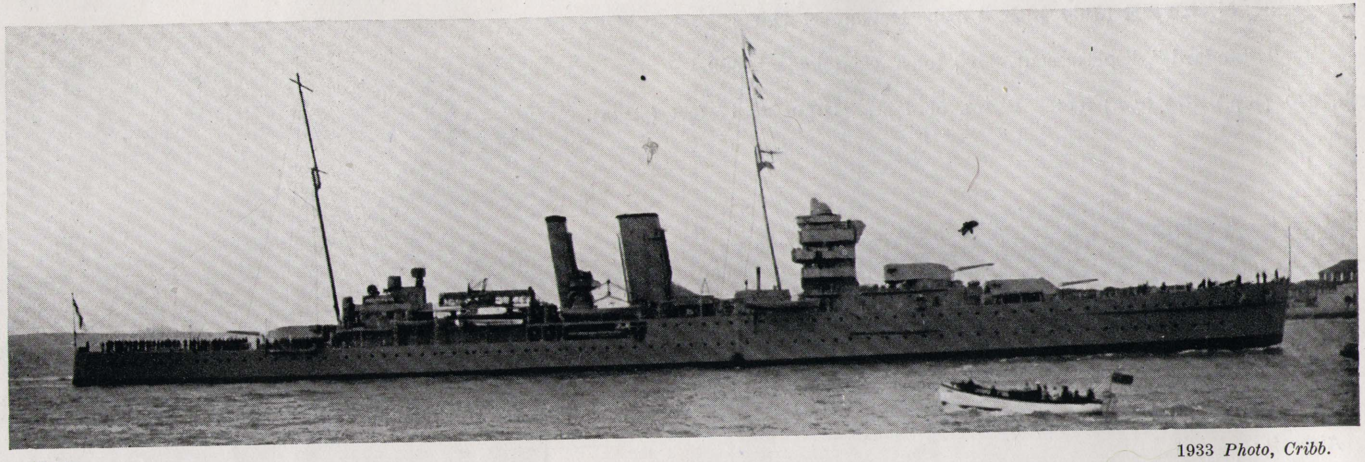
Length, 540 (*p.p.*), 575 (*o.a.*) feet. Beam, 57 feet.

Draught, 17 feet (*mean*).

nch, 50 cal.
nch AA.
odr.
aller.
Tubes:
inch (tripled).
:
h catapult.

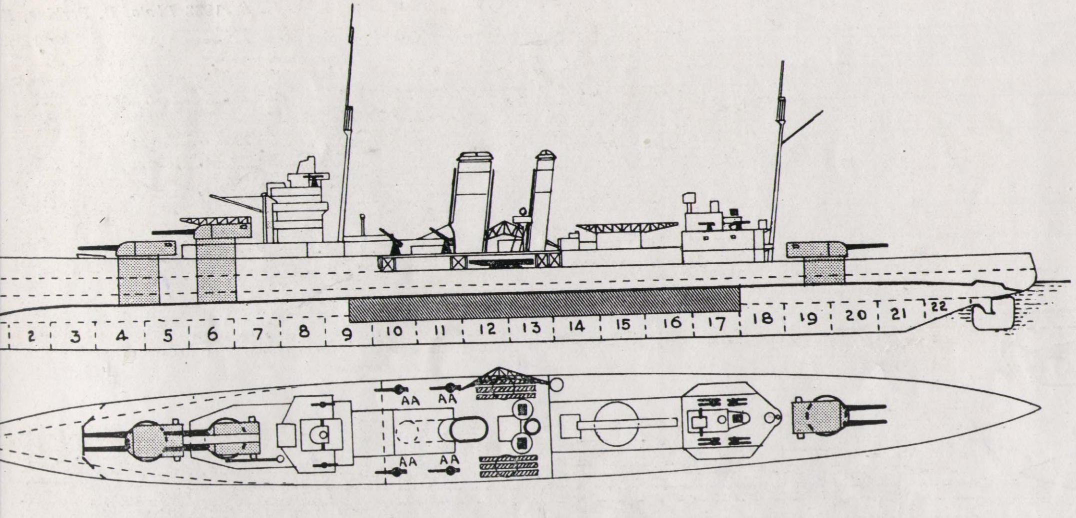
Armour:
2″ Deck
3″ C.T.
2″—3″ Side
at W.L.

*Note to Plan.*—Catapult shown on "B" turret does not exist. The four 3 pdr. on after control platform are mounted singly and not as shown.



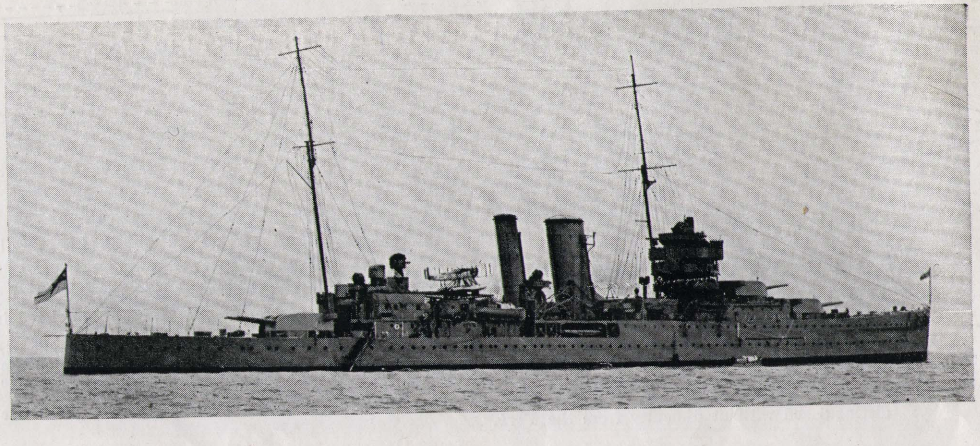
York.

1933 *Photo*, *Cribb.*



Machinery: Parsons geared turbines. 4 shafts. Designed H.P. 80,000 = 32·25 kts. Oil Fuel: 1900 tons. Radius, 10,000 miles at 11—14 kts. Boilers: 8 Admiralty 3-drum type.

*General Notes.*—Designed by Sir William Berry and marks the first attempt on the part of one of the Treaty Powers to break away from the 10,000 ton type of cruiser. To save 1,600 tons, two 8 inch guns were sacrificed, the resulting ship being little inferior to the 10,000 tonners, all things being considered. *York* was laid down at Messrs. Palmers' yard at Jarrow in May, 1927, and completed in June, 1930. The original design allowed for three funnels but during 1928 the plans were modified and the foremost funnel was trunked into the second. In order to clear the catapult shown in the plan on the second turret, the bridge was raised, and consequently the funnels. It has been found, however, that the turrets are too light for the catapult to be carried, and it and the derrick have been dispensed with. The reversion to the triple torpedo tubes is due to limitation of training space only.



York.

1933 *Photo*, *R. Perkins, Esq.*

Dorsetshire Class—2 Ships).

+ **DORSETSHIRE** (January 29th, 1929). Portsmouth Dockyard. 5.4.42 Ind. Oc.

**NORFOLK** (December 12th, 1928). Fairfield.

Displacement, 9,900 and 9,850 tons, respectively. Complement, 650.

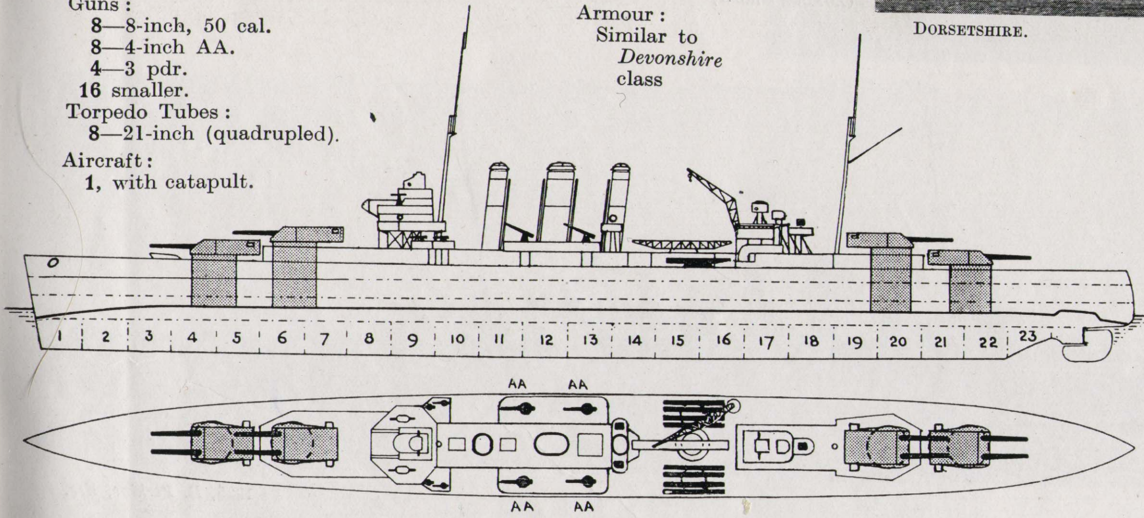
Length, 590 (*p.p.*), 630 (*o.a.*) feet. Beam, 66 feet. Draught, 17 feet (*mean*).

Guns:
- 8—8-inch, 50 cal.
- 8—4-inch AA.
- 4—3 pdr.
- **16** smaller.

Torpedo Tubes:
- 8—21-inch (quadrupled).

Aircraft:
- **1**, with catapult.

Armour:
Similar to *Devonshire* class



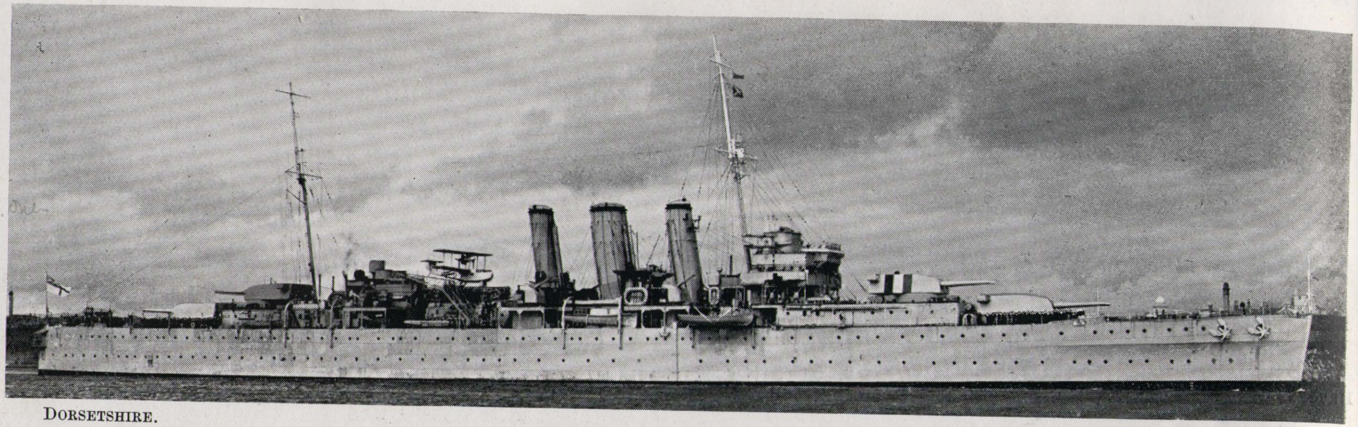
*Note to Plan.*—Crane is actually further forward than shown. AA. armament has been augmented as shown in photos.

Machinery: Parsons geared turbines. 4 shafts. Designed S.H.P. 80,000 = 32·25 kts. Oil fuel: 3200 tons. Boilers: 8 Admiralty 3-drum type. Machinery of *Dorsetshire* by Cammell Laird, *Norfolk* by Fairfield.

*Engineering Notes.*—Trials averaged 81,200 = 32·8 kts.

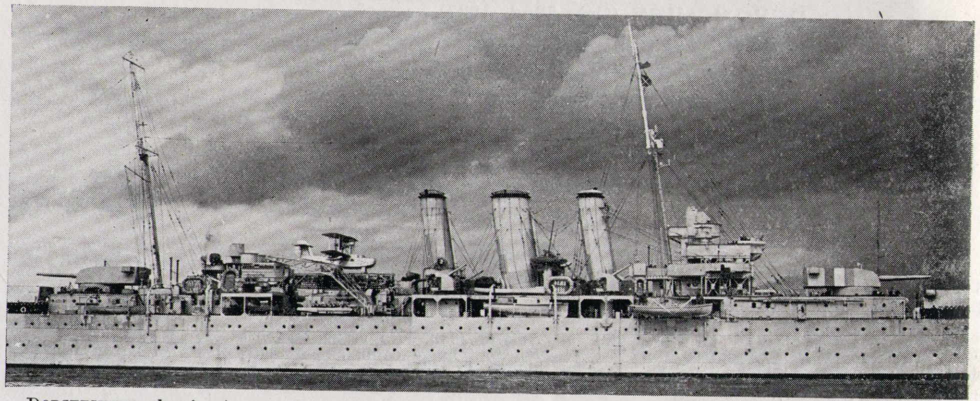
*General Notes.*—Designed by Sir William Berry and built under the 1926–27 Estimates. *Dorsetshire* begun September, 1927, and completed July, 1930; *Norfolk* in July, 1927, and completed in June, 1930. Two other ships of this class, *Surrey* and *Northumberland* were provided for under the 1926 Estimates, but were subsequently cancelled,

*Appearance Notes.*—Can be distinguished from *London* and *Kent* types by lower bridge and positions of AA. guns. Both ships have sternwalks.



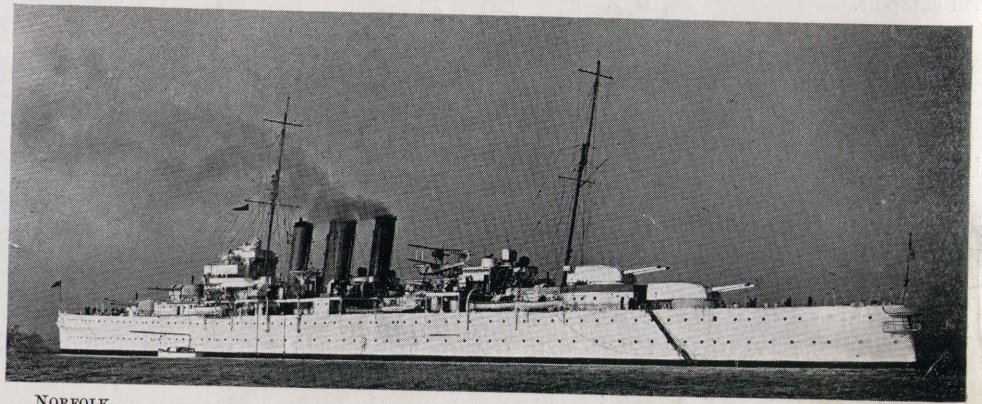
Dorsetshire.

1937, "*Fighting Ships.*"



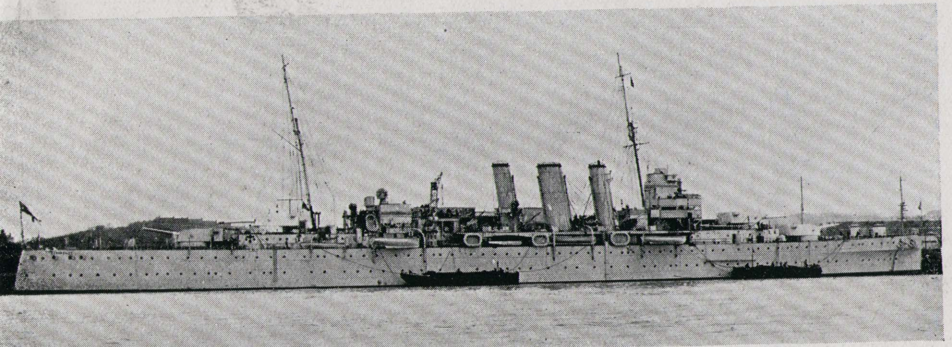
Dorsetshire, showing increased AA. armament.

1937, "*Fighting Ships.*"

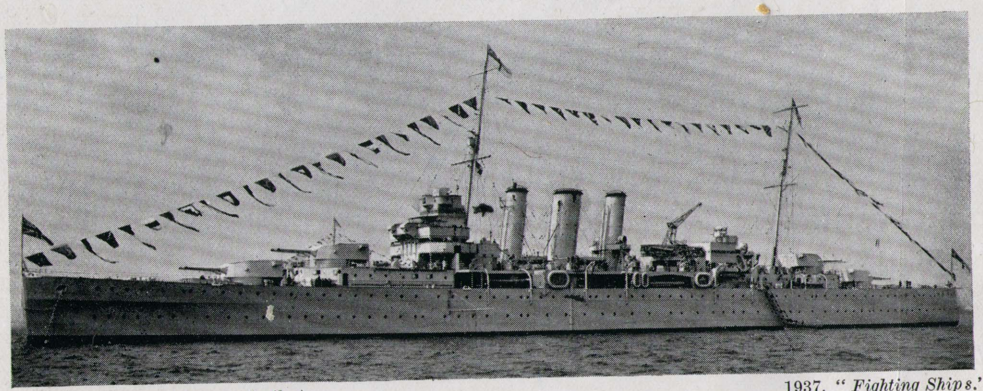


Norfolk.

1937, "*Fighting Ships.*"



**Devonshire.** With 4 single 4 inch on either beam. 1936, *"Fighting Ships."*



**Devonshire.** (**London** similar) 1937, *"Fighting Ships."*

(London Class—4 Ships.)

**DEVONSHIRE** (Oct. 22nd, 1927). учебный

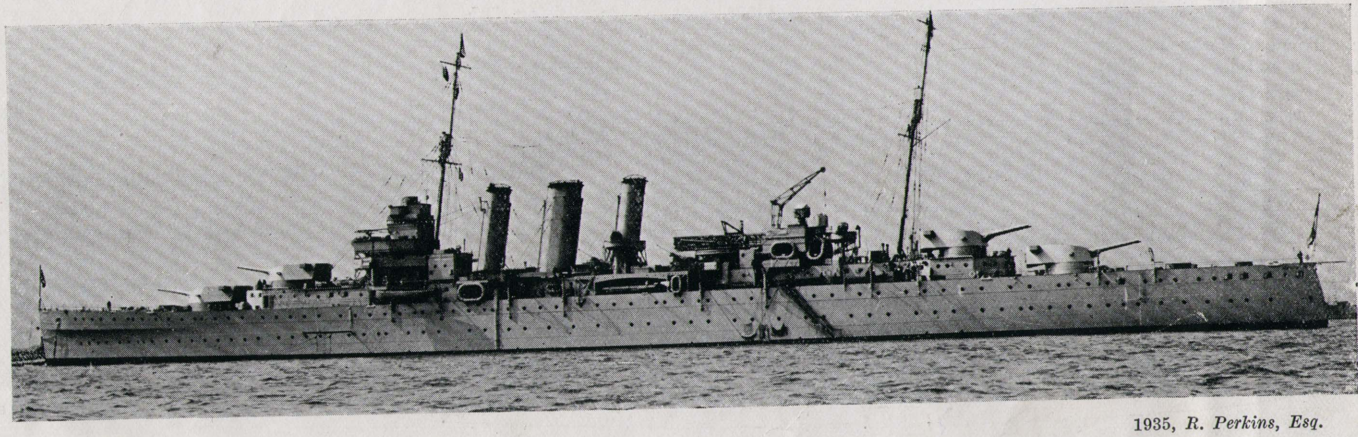
**LONDON** (Sept. 14th, 1927).

**SHROPSHIRE** (July 5th, 1928). Австралия

**SUSSEX** (Feb. 22nd, 1928).

Displacement, First Pair, 9,750 tons; second pair, 9,730 tons.
Complement, 650.

Length {*p.p.* 595 feet / *o.a.* 633 feet} Beam, 66 feet. Draught, 17 feet (*mean*)

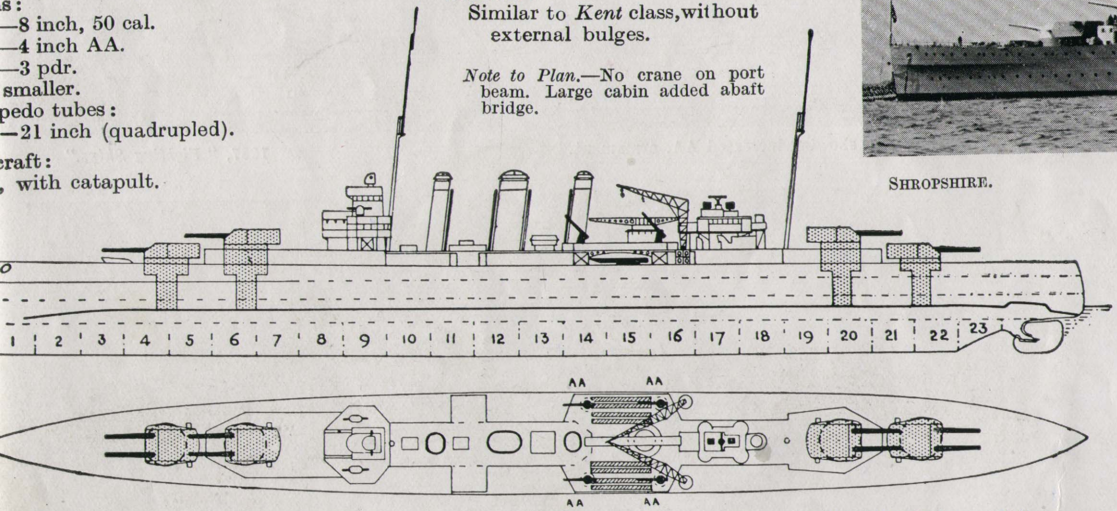


**Shropshire.** 1935, *R. Perkins, Esq.*

s:
—8 inch, 50 cal.
—4 inch AA.
—3 pdr.
smaller.
pedo tubes:
—21 inch (quadrupled).
craft:
, with catapult.

Armour:
Similar to *Kent* class, without external bulges.

*Note to Plan.*—No crane on port beam. Large cabin added abaft bridge.

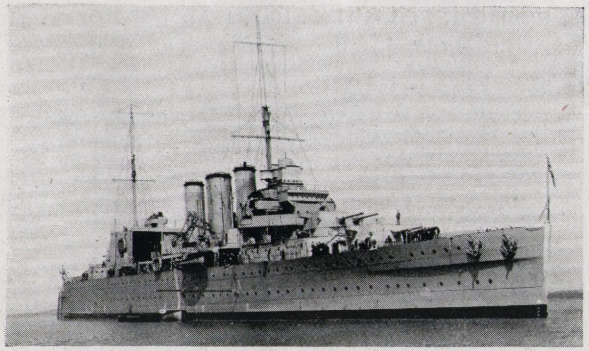


Machinery: Parsons geared turbines. 4 shafts. Designed S.H.P. 80,000 = 32·25 kts. Oil fuel: 3200 tons. Boilers: 8 Admiralty 3-drum type.

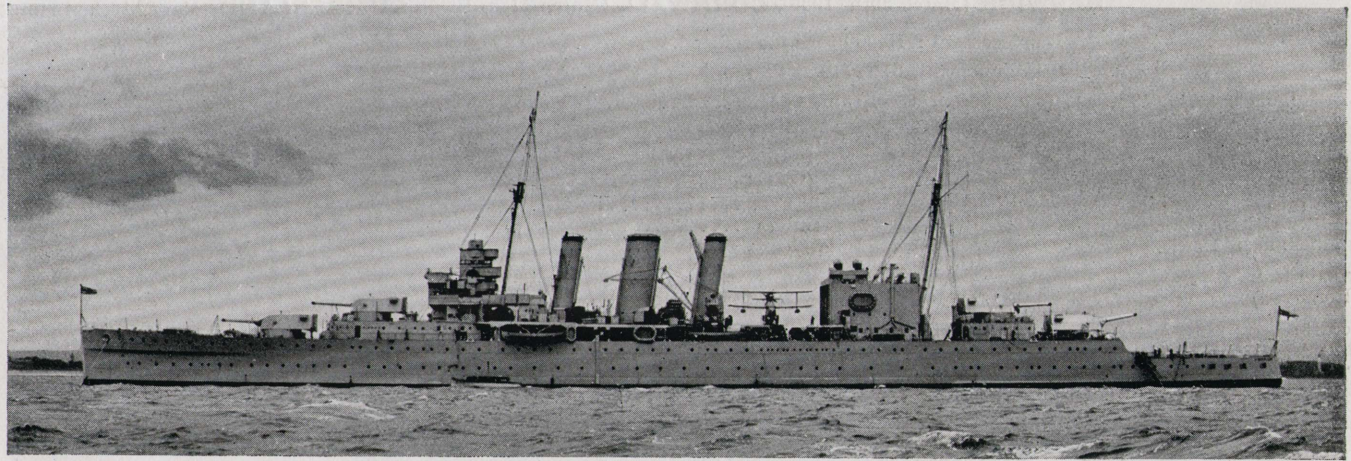
| *Name* | *Builder* | *Machinery* | *Ordered* | *Begun* | *Completed* | *Trials* | *Est.* |
|---|---|---|---|---|---|---|---|
| *Devonshire* | Devonport Y. | Vickers | 1925-26 | 16/3/26 | 3/29 | Average: 81,200 = 32·8. | 1925 |
| *London* | Portsmouth Y. | Fairfield | | 22/2/26 | 1/29 | | |
| *Shropshire* | Beardmore | Beardmore | | 2/26 | 9/29 | | |
| *Sussex* | Hawthorn, Les. | Hawthorn | | 2/26 | 3/29 | | |

*General Notes.*—All designed by Sir William J. Berry. Only one crane for aircraft (on starboard side).

*Appearance Notes.*—Higher bridges than *Dorsetshire* and *Norfolk*. Mainmast is stepped closer to "X" turret than in *Kent* class, and S.L. positions also differ.

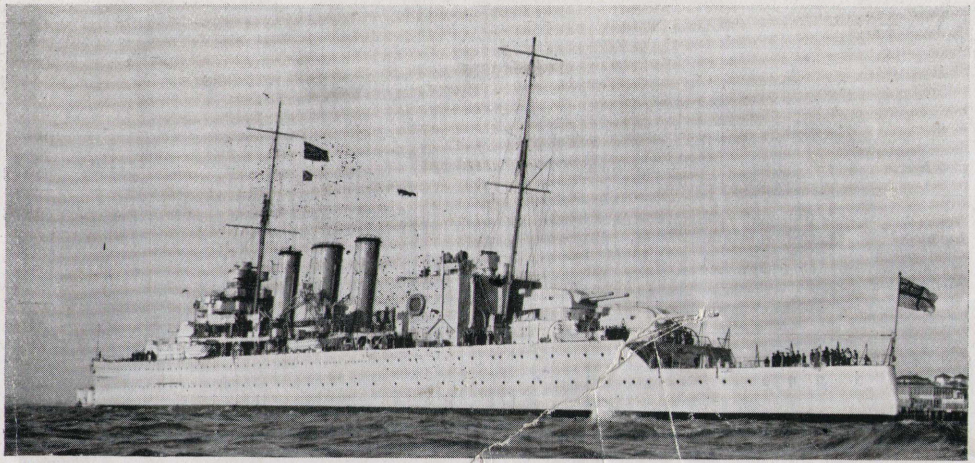


CUMBERLAND. 1936, *Cribb.*

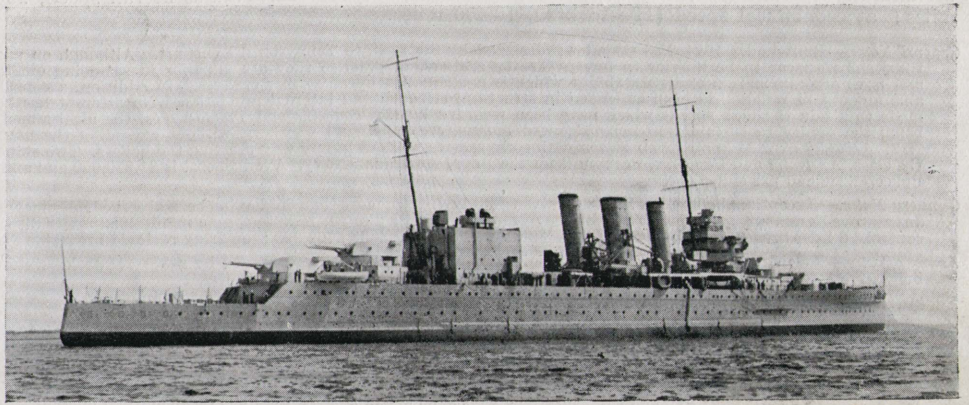


CUMBERLAND. 1936, *Wright & Logan.*

(*For particulars of these ships, see following page*).



SUFFOLK 1937, *Wright & Logan.*



CUMBERLAND. 1936, *Medway Studios.*

(Kent Class—5 Ships.)

† 5.4.42 Ind. Ocean

**BERWICK** (March 30th 1926), **CORNWALL** (March 11th, 1926), **CUMBERLAND** (March 16th, 1926), **KENT** (March 16th, 1926), **SUFFOLK** (Feb. 16th, 1926)

Displacement: 10,000 tons, as refitted.

Complement, 679 (710 as flagship).

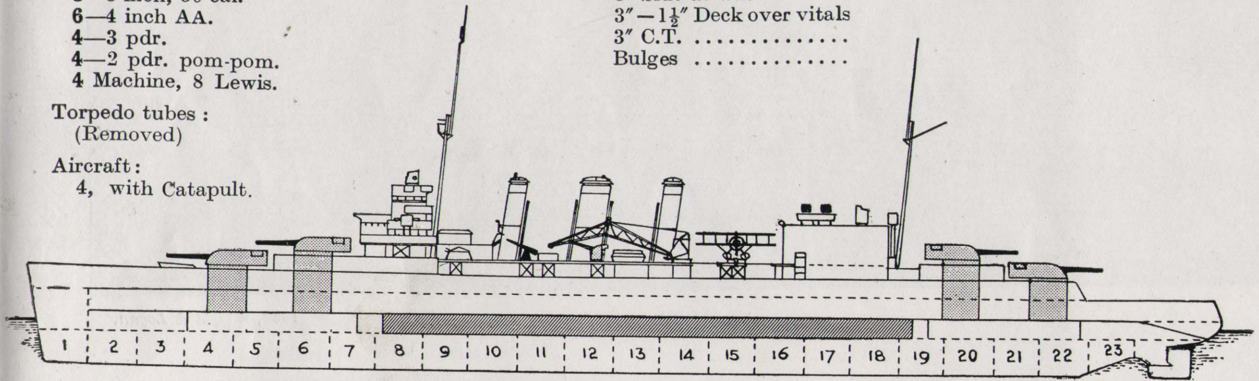
Length (*p.p.*) 590 feet, (*o.a.*) 630 feet. Beam, 68½ feet. Draught, 16¼ feet (*mean*).

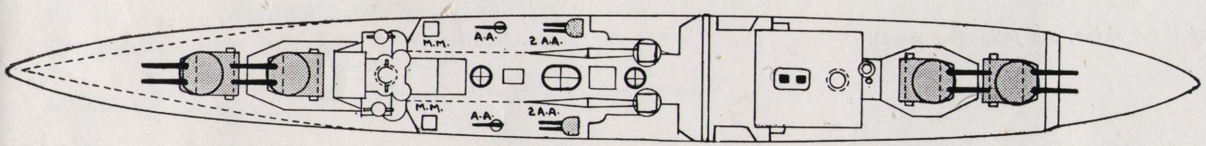
Guns:
- 8—8 inch, 50 cal.
- 6—4 inch AA.
- 4—3 pdr.
- 4—2 pdr. pom-pom.
- 4 Machine, 8 Lewis.

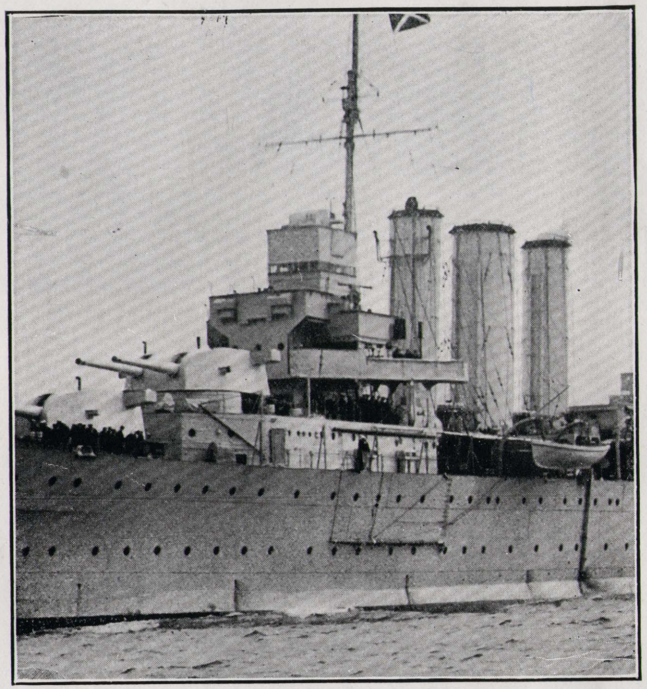
Torpedo tubes:
(Removed)

Aircraft:
4, with Catapult.

Armour:
- 3" Side at w.l.
- 3"—1½" Deck over vitals
- 3" C.T. ...............
- Bulges ...............







1928 *Photo, Cribb.*

Machinery: Geared turbines (see table). 4 shafts. Designed S.H.P. 80,000 = 31·5 kts. Boilers: 8 Admiralty 3-drum type, with superheaters. Oil fuel: 3400 tons. Radius at full speed, 2300 miles; at economical speed (11—14 kts.), 10,400 miles.

*General Notes.*—Built under 1924–25 Estimates; designed by Sir Eustace Tennyson d'Eyncourt. Although on paper these ships appear to be inferior to foreign Treaty cruisers, in practice they are superior in sea-going qualities and have accommodation and habitability which is not equalled by any other cruisers. In addition, a considerable amount of weight has been expended in structural strength and internal protection. No attempt has been made to attain the high speeds which have been recorded by the *Tourville* and *Trento* types, the ideal aimed at being the ability to sustain the designed speed indefinitely and in all weathers, without exceeding the normal H.P. Actually over 34 knots has been maintained in service without in any way pressing the boilers. Two ships of the class, *Australia* and *Canberra*, were built for the Royal Australian Navy. Average cost is £1,970,000 and annual upkeep £238,850 per ship.

*Gunnery Notes.*—Exceptional elevation has been given to 8 inch guns, more than 65° having been observed. By means of an improved ammunition supply a rate of fire of four rounds per gun per minute can be maintained under director control. 8 inch broadside weighs 2,048 lbs. Total cost of armament £700,000; of firing a single broadside £408.

*Armour Notes.*—No side armour was included in original design, protection being afforded by a 3"—1½" deck. External bulges are fitted and the internal subdivision is particularly well planned.

*Engineering Notes.*—Boiler pressure is 250 lbs.

*Appearance Notes.*—Mainmast stepped further forward than in *London* class; S.L. positions also differ. *Kent* has a sternwalk.

*Special Note.*—All this class were reconstructed during 1935–38. Main alterations include the provision of a large hangar and additional aircraft, increased armour protection and modernisation of the anti-aircraft armament. To compensate for the additional weight so imposed, the *Cumberland* and *Suffolk* were cut down by one deck abaft the mainmast. This was not done in the *Cornwall*, *Kent* and *Berwick*.

| *Name* | *Builder* | *Machinery* | *Ordered* | *Begun* | *Completed* | *Trials* | *Turbines* |
|---|---|---|---|---|---|---|---|
| *Berwick* | Fairfield | Fairfield | 1924 | 15 9/24 | 1/28 | 81,700 = 32·5 (average of results) | Brown-Curtis |
| *Cornwall* | Devonport Y. | Beardmore | | 9/10/24 | 2/28 | | Parsons |
| *Cumberland* | Vickers | Vickers | | 18/10/24 | 1/28 | | Parsons |
| *Kent* | Chatham Y. | Hawthorn | | 15/11/24 | 2/28 | | Parsons |
| *Suffolk* | Portsmouth Y. | Parsons | | 30/9/24 | 1/28 | | Parsons |

(SOUTHAMPTON CLASS—8 SHIPS).

**UTHAMPTON** (ex-*Polyphemus*) (March 10, 1936), | 10.1.41
**WCASTLE** (ex-*Minotaur*) (Jan. 23, 1936),
**EFFIELD** (July 23, 1936),
**RMINGHAM** (Sept. 1, 1936),
**ASGOW** (June 20, 1936),
**OUCESTER** (Oct. 19, 1937), | Крит 22.5.41
**VERPOOL** (March 24, 1937),
**NCHESTER** (April 12, 1937), отк Тунис 12.8.42

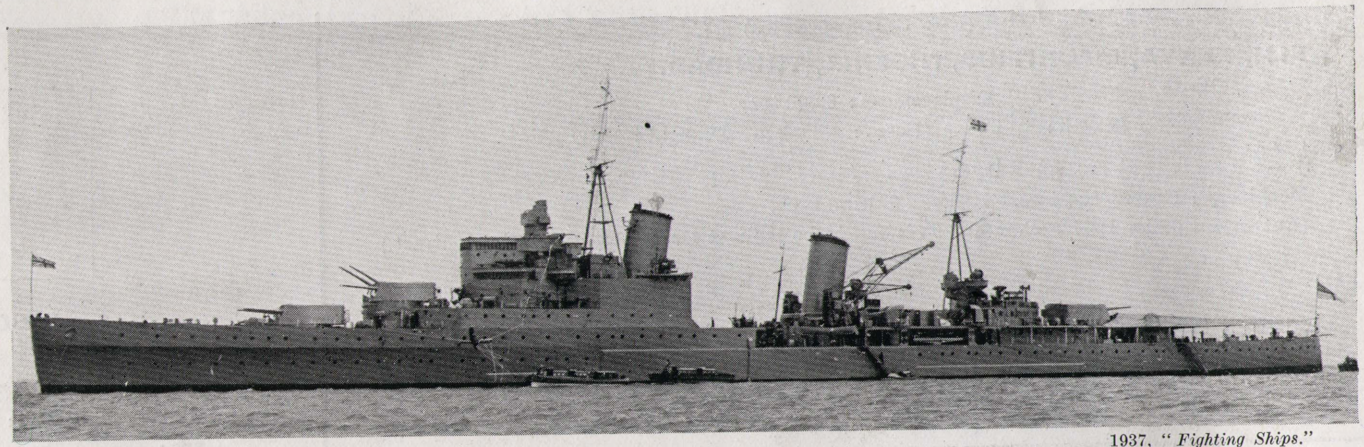
splacement: 9,000 tons (Last 3: 9,300 tons). Complement: 700. ngth: (*pp.*) 558, (*w.l.*) 584 ft., (*o.a.*) 591 ft. 6 in. Beam: 61 ft. 8 in. st 3: 62 ft. 4 in.). Draught: 17 ft. (*mean*), 20 ft. (*maximum*).

ns:
12—6 inch
8—4 inch AA.
4—3 pdr.
18 smaller.

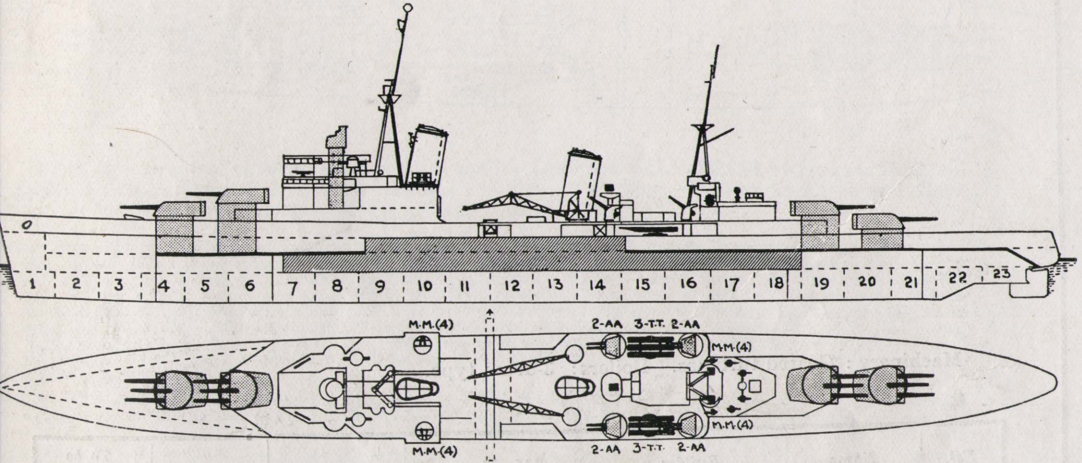
Armour:
1″—2″ Turrets.
4″—5″ Side.
4″ C.T.

ubes:
6—21 inch (tripled)

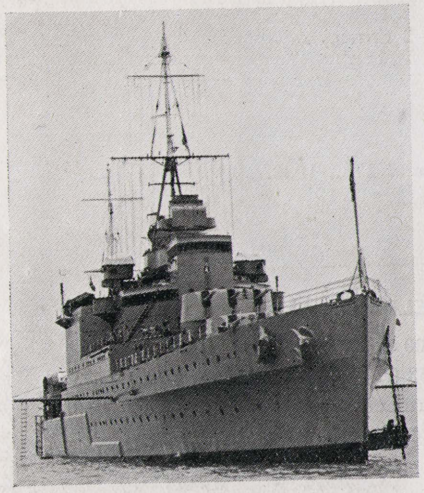
Aircraft:
2, with 1 catapult.



SOUTHAMPTON. 1937, "*Fighting Ships.*"



Machinery: Parsons geared turbines. 4 shafts. Boilers: 8 Admiralty 3-drum. S.H.P.: 75,000 = 32 kts. (Last 3: 82,500 = 33 kts.). Oil fuel: 1,970 tons.

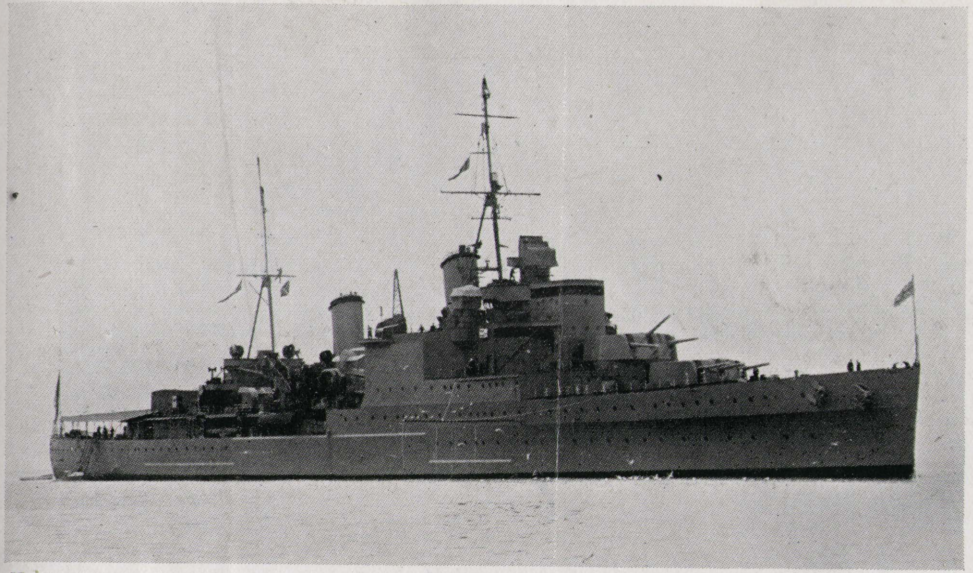


NEWCASTLE. 1937, "*Fighting Ships.*"

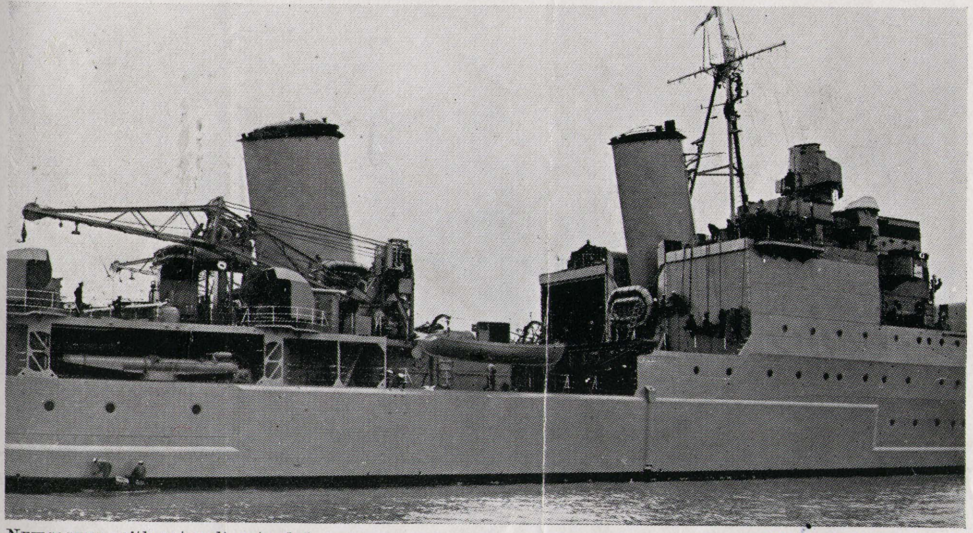
SOUTHAMPTON. 1937, "*Fighting Ships.*"

| *Est.* | *Name* | *Builder* | *Machinery* | *Ordered* | *Begun* | *Completed* |
|---|---|---|---|---|---|---|
| 1933 | *Southampton* | Clydebank | Clydebank | 1/6/34 | 21/11/34 | 6/3/37 |
| | *Newcastle* | V-A., Tyne | V-A., Barrow | 1/6/34 | 4/10/34 | 5/3/37 |
| 1934 | *Sheffield* | Do. | Do. | 17/12/34 | 31/1/35 | 25/8/37 |
| | *Glasgow* | Scotts | Scotts | 17/12/34 | 16/4/35 | 8/9/37 |
| | *Birmingham* | Devonport | Clydebank | 1/3/35 | 18/7/35 | 18/11/37 |
| 1935 | *Gloucester* | Do. | Scotts | 3/35 | 22/9/36 | |
| | *Liverpool* | Fairfield | Fairfield | 3/35 | 17/2/36 | |
| | *Manchester* | Hawthorn | Hawthorn | 3/35 | 28/3/36 | |

*Notes.*—Built as a reply to the "*Mogami*" and "*Savannah*" classes, though the number of 6 inch guns is three less. Centre gun of each turret is mounted slightly further back than other two. Protection is somewhat better than in previous classes. Hangars form an extension aft of bridge structure, fore funnel being carried up between them. New type athwartship catapult mounted between funnels. Noteworthy features of these ships are the raking funnels and masts and the tripod masting.

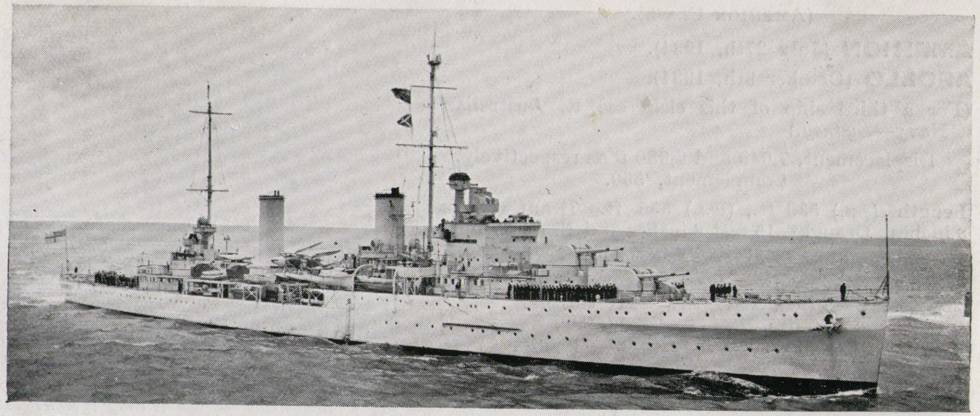


NEWCASTLE. 1937, *"Fighting Ships."*

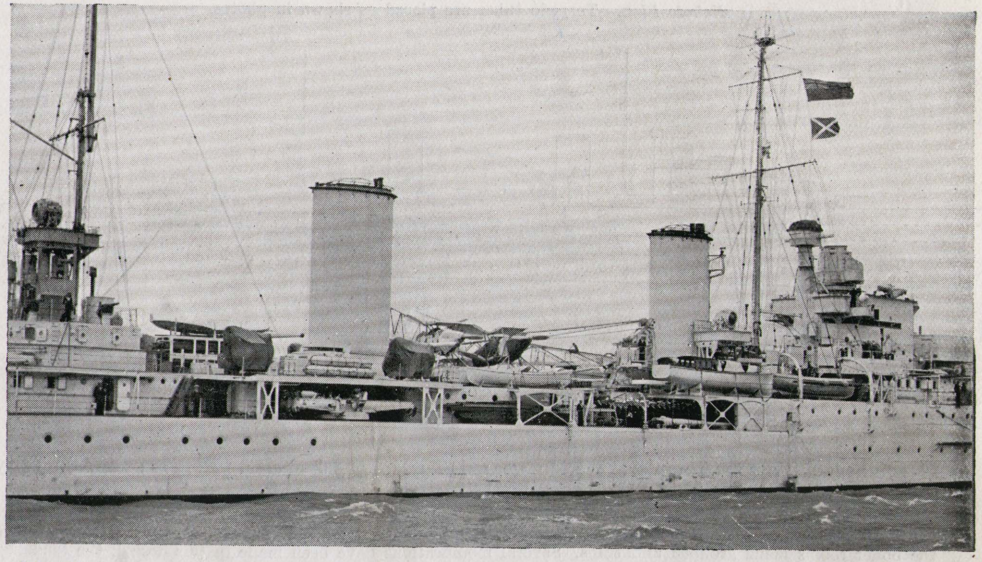


NEWCASTLE, with catapult extended. 1937, *"Fighting Ships."*

(For particulars of above ship, see preceding page.)



AMPHION. 1936, *Wright & Logan.*



AMPHION. 1936, *Wright & Logan.*

(For particulars of above ship, see following page.)

(AMPHION CLASS).

Perth **AMPHION** (July 27th, 1934).

Hobart ?? **APOLLO** (October 9th, 1934).

(For a third ship of this class see R. Australian Navy—*Sydney*.)

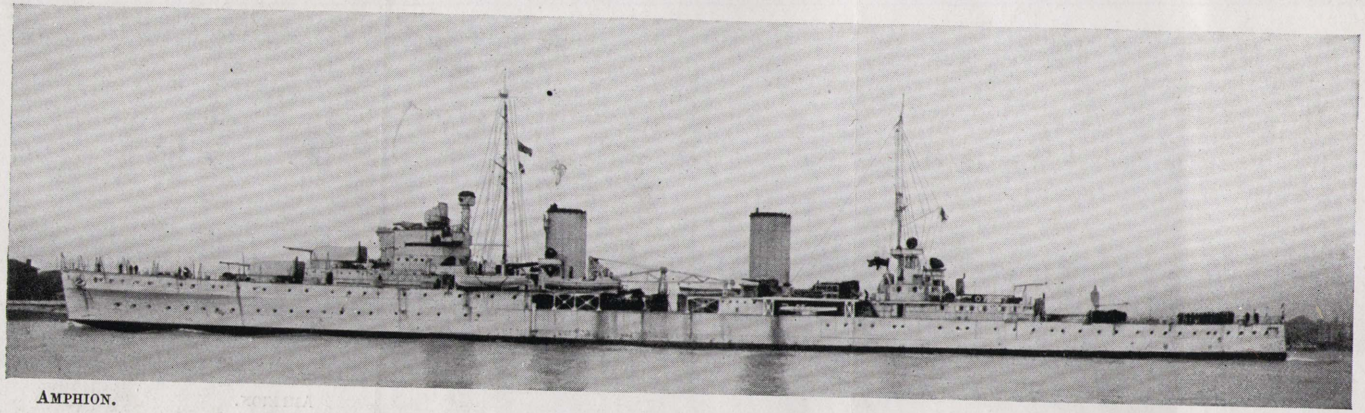
Displacement, 7,040 and 6,980 tons respectively. Complement, 550.

Length (*pp.*) 530 ft., (*w.l.*) 555 ft. Beam, 56 feet 8 inches. Draught, 15 feet 8 inches and 15 feet 7 inches respectively (*mean*).

| Guns: | Armour: |
|---|---|
| 8—6 inch | 1″ turrets. |
| 4—4 inch AA. | 1″ C.T. |
| 4—3 pdrs. | 2″—3″ side. |
| 17 smaller. | |

Torpedo Tubes: 8—21 inch (quadrupled), *above water*.

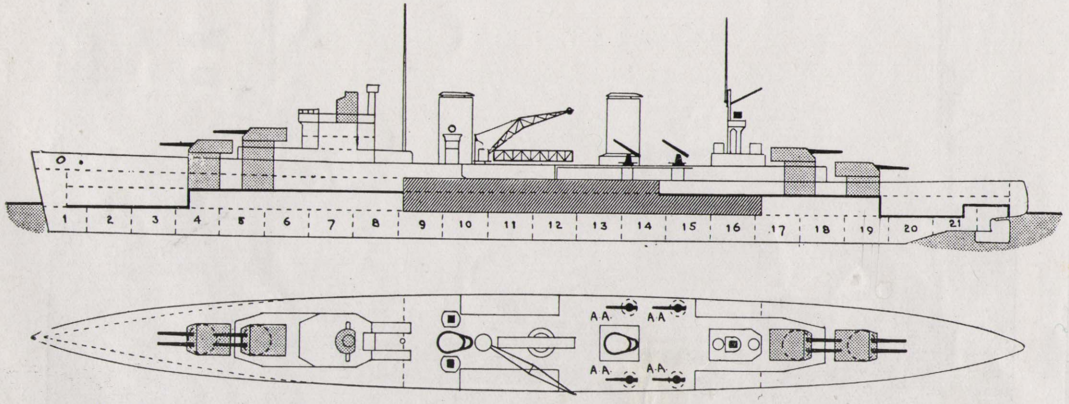
Aircraft:
2, with 1 catapult (mounted athwartship)

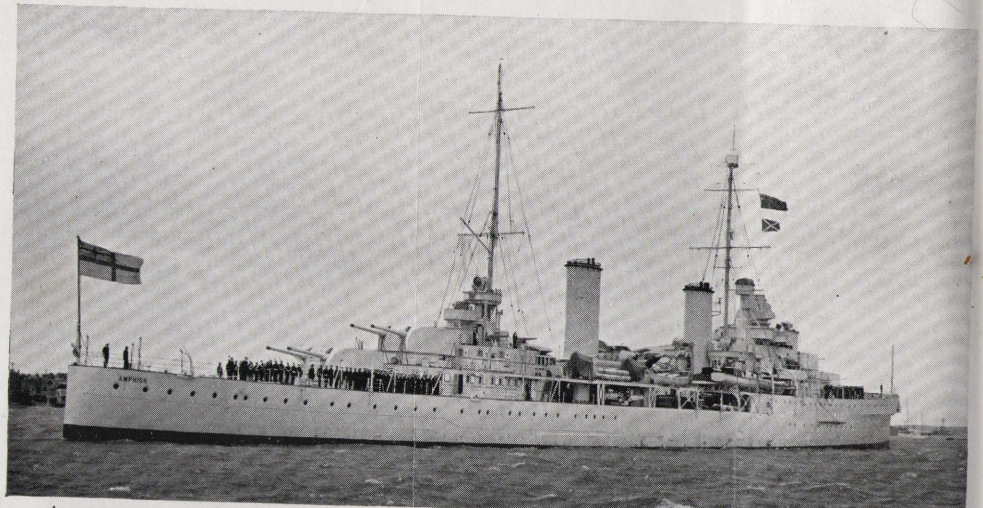


AMPHION.

1936, *Wright & Logan.*

*Note to Plan.*—Torpedo tubes are placed as shown in photos.





AMPHION.

1936, *Wright & Logan.*

Machinery: Parsons impulse reaction geared Turbines. 4 shafts. Boilers: 4 Admiralty 3-drum type. S.H.P. 72,000=32·5 kts. Oil: 1,725 tons.

*General Notes.*—These vessels are modified *Leanders* with the engine and boiler rooms spaced alternately instead of the boiler rooms being grouped amidships. Several modifications have been made in this design, the tendency now being to cut down superstructure to a minimum. The boats are stowed forward. Funnels are "stream-lined" as in *Arethusa* and look broad on the beam but narrow from ahead or astern.

Athwartship type catapult fitted in these 2 ships, though not in sister ship *Sydney*, of R.A.N.

*Cost.*—£1,491,148 and £1,434,579, respectively.

| *Est.* | *Name* | *Builder* | *Machinery* | *Ordered* | *Begun* | *Completed* |
|---|---|---|---|---|---|---|
| 1931 | *Amphion* | Portsmouth | Beardmore | 1/12/32 | 26/6/33 | July 1936 |
| 1932 | *Apollo* | Devonport | Do. | 1/3/33 | 15/8/33 | Jan. 1936 |

(Arethusa Class.—2 Ships).

**ARETHUSA** (March 6th, 1934).

+ **GALATEA** (August 9th, 1934). [illegible] 15.12.41

Displacement, 5,220 tons.

(Improved Arethusa Class—2 Ships).

+ **PENELOPE** (October 15th, 1935). [illegible] 18.2.44

**AURORA** (August 20th, 1936).

Displacement, 5,270 tons. Complement 450.

Length: (*p.p.*) 480 ft., (*w.l.*) 500 ft. Beam: 51 ft.

Draught: 13ft. 10in. (*mean*).

Guns:
6—6 inch.
4—4 inch AA. in first pair; 8 in second pair.
2—3 pdr.
14 smaller guns.

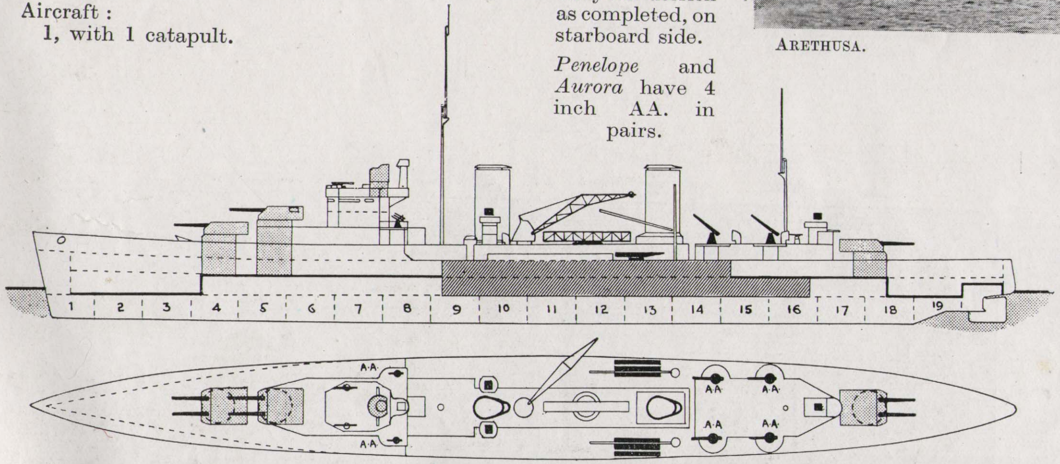
Torpedo Tubes:
6—21 inch in Triple mounts.

Aircraft:
1, with 1 catapult.

Armour:
1″ turrets
2″ side

*Note to Plan.*—Only one derrick as completed, on starboard side.

*Penelope* and *Aurora* have 4 inch AA. in pairs.



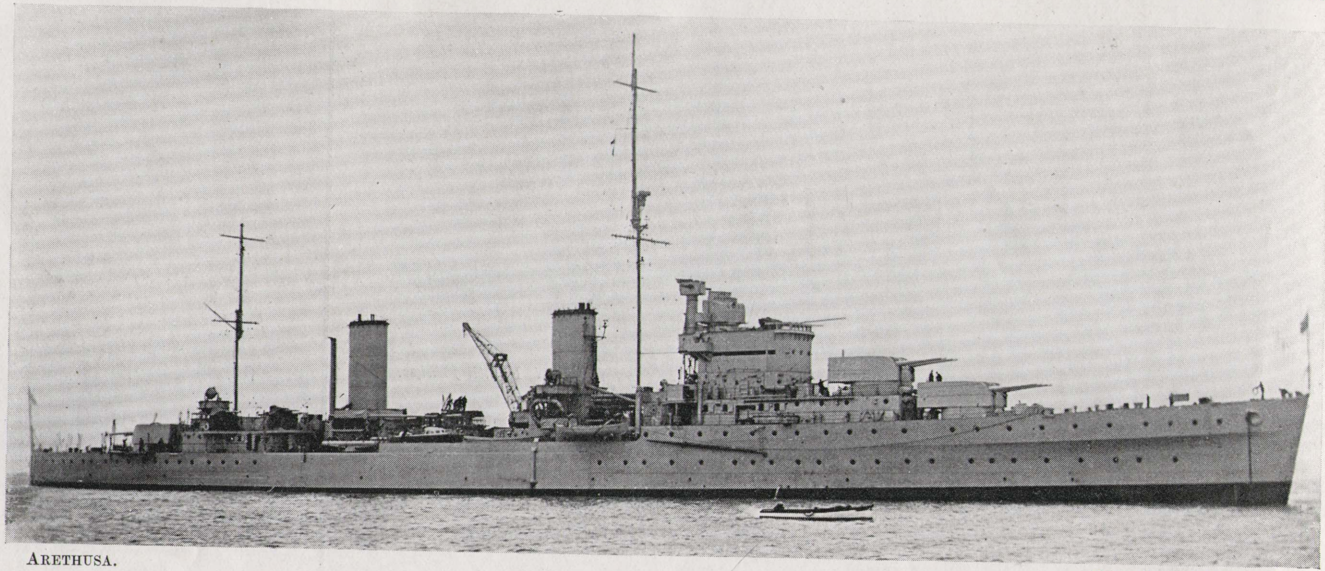
Machinery: Parsons geared Turbines. 4 shafts. Boilers: 4 Admiralty 3-drum type. S.H.P. 64,000=32·25 knots. Oil: 1,200 tons. Radius reported to be 12,000 miles at economical speed.

*General Notes.*—These ships may be said to bear the same relation to the *Leander* as the *York* class do to the *Kents*. Their tonnage is the minimum for oceangoing efficiency and the armament adequate to deal with likely convoy-raiders, bearing in mind that being relatively inexpensive they can be produced in numbers. The grouping of the AA. guns on the after superstructure instead of amidships should be noted, the multiple-mounts being on platforms below the bridge. Excepting for the two lifeboats all the boats are handled by the derrick, and the low bulwark amidships is to protect boats which cannot be carried higher as in *Amphion*.

*Constructional Notes.*—Weight reduction has been secured in these ships by the extensive use of electric welding for hull and internal subdivision, as well as by the employment of aluminium-covered plywood for cabin bulkheads and other light partitions, etc.

*Engineering Notes.*—A fluid flywheel enables power to be almost instantaneously switched over from main engines to cruising turbines. A reversion to two funnels is caused by the spacing of the boiler and engine rooms in two units, which obviates wholesale flooding of the boiler-rooms.

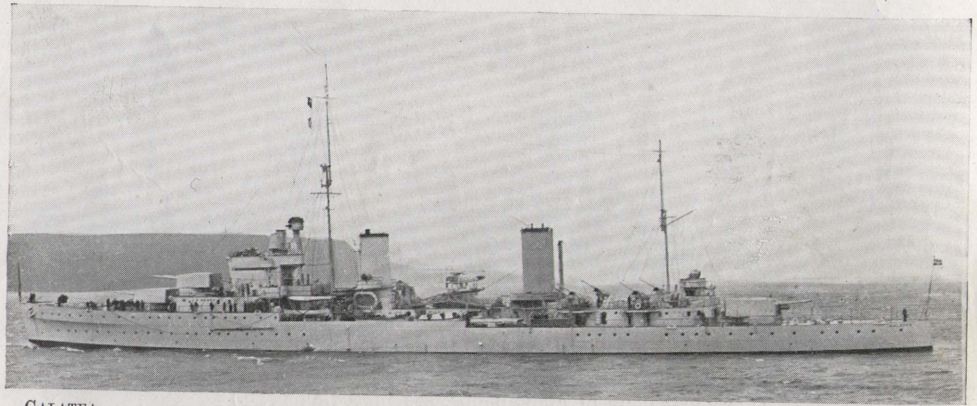
*Cost.*—*Arethusa*, £1,251,161; *Galatea*, £1,210,733; *Penelope*, £1,290,787; *Aurora* £1,252,915.



Arethusa.

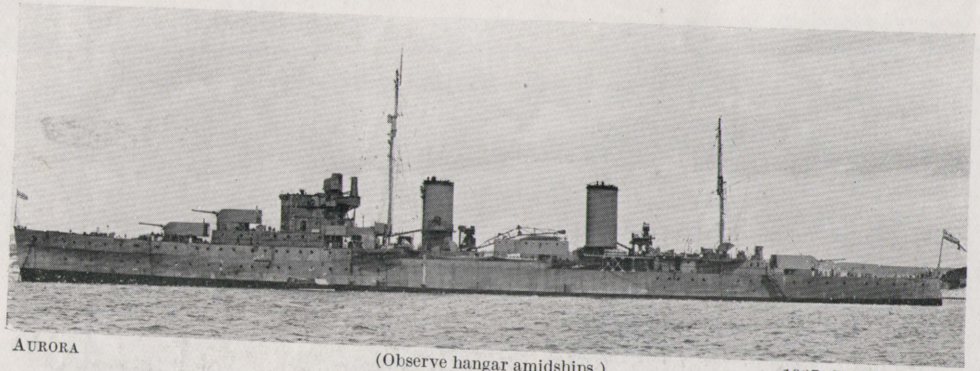
1935, *Seward, Weymouth.*

| *Est.* | *Name* | *Builder* | *Machinery* | *Ordered* | *Begun* | *Completed* |
|---|---|---|---|---|---|---|
| 1931 | *Arethusa* | Chatham | Parsons | 1/9/32 | 25/1/33 | Feb., 1935 |
| 1932 | *Galatea* | Scotts | Scotts | 21/2/33 | 2/6/33 | Aug., 1935 |
| 1933 | *Penelope* | Harland & Wolff | Harland & Wolff | 8/3/34 | 30/5/34 | Nov. 1936 |
| 1934 | *Aurora* | Portsmouth | Wallsend | 1/3/35 | 23/7/35 | Nov. 1937 |



Galatea.

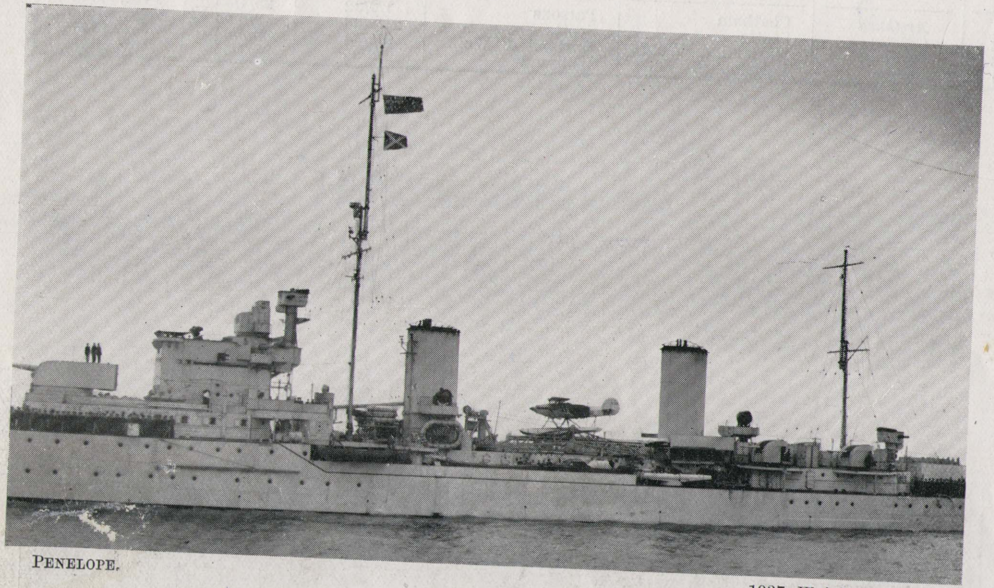
1935, *R. Perkins, Esq*



AURORA

(Observe hangar amidships.)

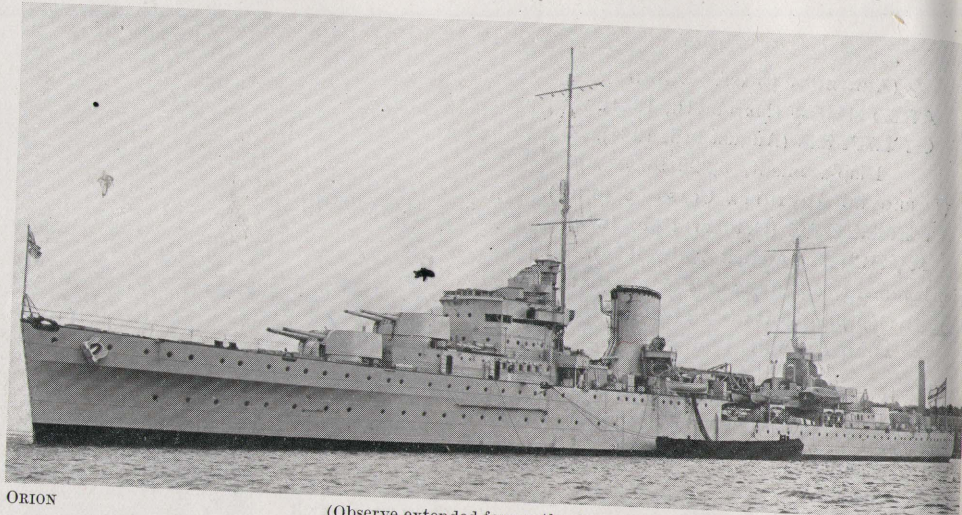
1937, *Fighting Ships.*



PENELOPE.

1937, *Wright & Logan.*

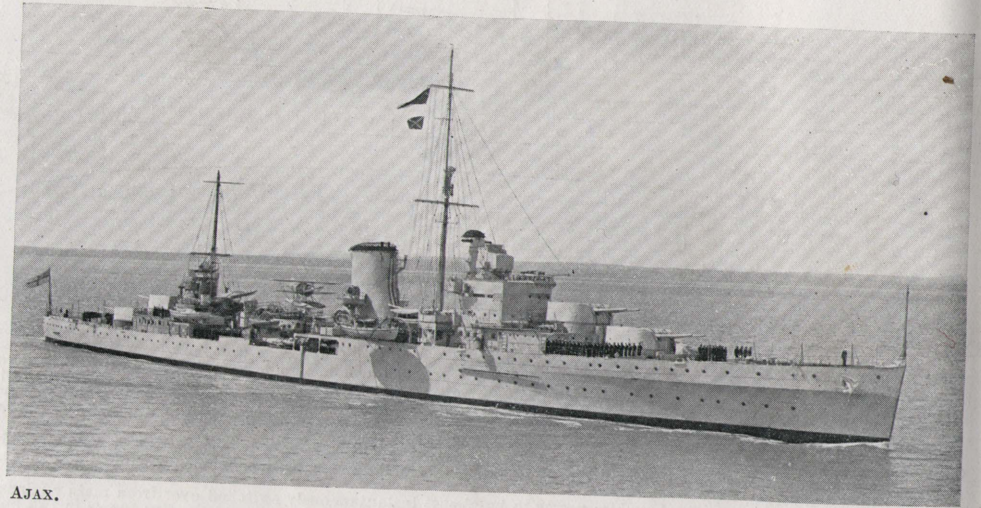
(For particulars of above ships, see preceding page.)



ORION

(Observe extended forecastle plating.)

1937, *Fighting Ships.*



AJAX.

1935, *Wright & Logan.*

(For particulars of above ships, see following page.)

(Leander Class—5 Ships.)

**LEANDER** (September 24, 1931).
+ **NEPTUNE** (Jan. 31, 1933). [illegible] 19.12.41
**ORION** (Nov. 24, 1932).
**ACHILLES** (Sept. 1, 1932).
**AJAX** (March 1, 1934).

Displacement: *Leander*, 7,140 tons; *Orion*, 7,070 tons; *Neptune*, *Achilles*, 7,030 tons; *Ajax*, 6,840 tons. Complement, 550.

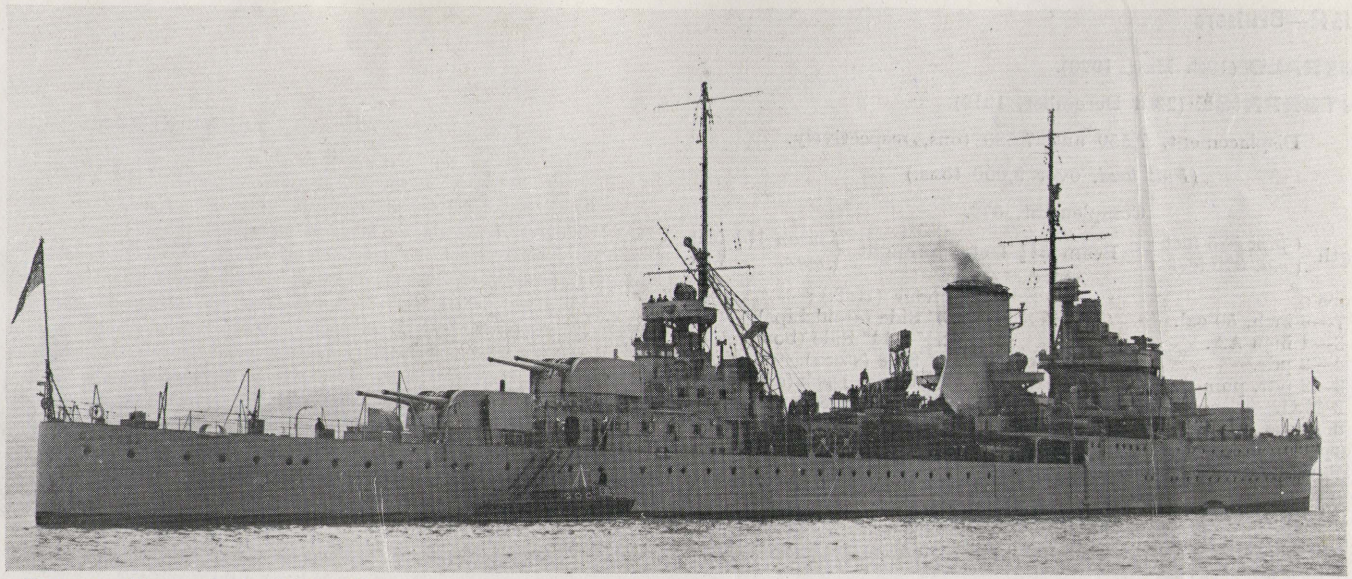
Length (*p.p.*) 530 feet; (*o.a.*) 554½ feet. Beam, 55ft. 2in. Draught (*mean*) 16 feet. *Ajax*, 522 (*p.p.*) × 55⅔ × 15½ feet (*mean*).

Guns:
- **8**—6 inch.
- **4**—4 inch AA. (*Leander*, 8)
- **4**—3 pdr.
- **18** Smaller Guns.

Armour:
- 2″—4″ Side amidships.
- 1″ Turrets.
- 1″ Bridge.
- 2″ Deck.

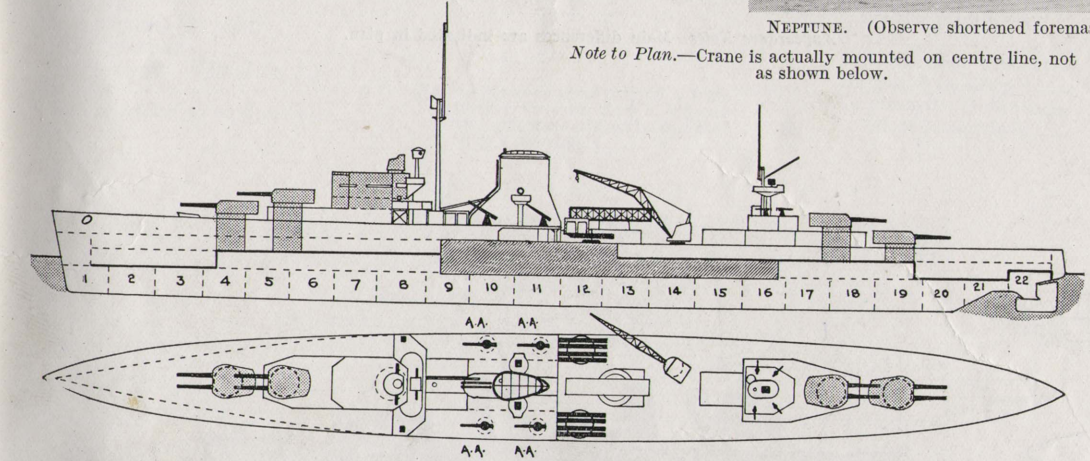
Torpedo Tubes:
- **8**—21 inch (quadrupled).

Aircraft:
*Leander*, *Achilles*, 1, *Orion*, *Neptune*, *Ajax*, 2.
(1 catapult in all).



Neptune. (Observe shortened foremast). 1937, "*Fighting Ships.*"

*Note to Plan.*—Crane is actually mounted on centre line, not as shown below.

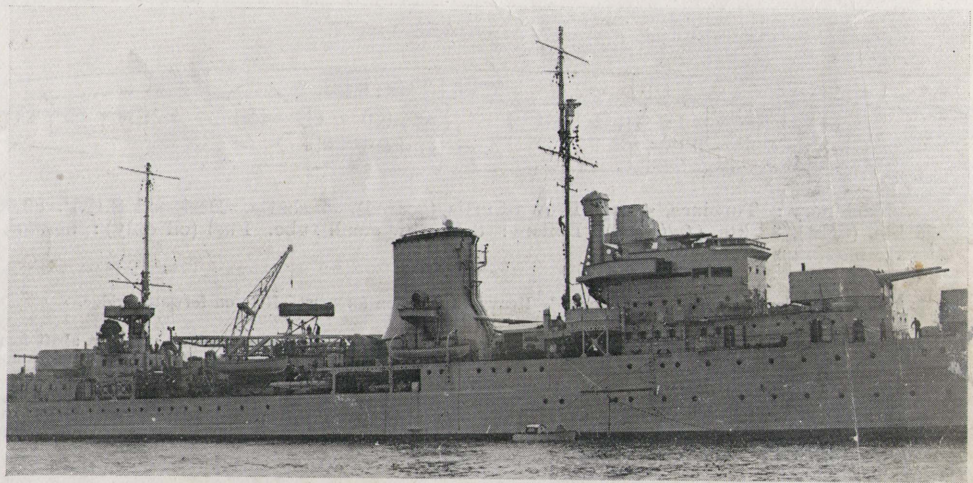


**NOTE.—*Achilles* and *Leander* lent to Dominion of New Zealand.**

Machinery: Parsons I.R. geared Turbines. 4 shafts. Designed S.H.P. 72,000 = 32·5 kts. (made with designed H.P. on trials). Boilers: 4 Admiralty 3-drum type. Oil: 1,800 tons.

*General Notes.*—This class represents a return to moderate dimensions, compared with the thirteen ships of the 10,000 ton Treaty type. The eight guns in four turrets is a disposition of armament which is regarded by the gunnery branch as the best number and arrangement for satisfactory control, and superior in practice to nine guns in triple mountings as in the German *Köln* class. The 6 inch guns are of an entirely new model produced by the "auto-frettage" system instead of being wire wound. Forecastle plating extended aft and boats raised a deck since trials. Cost, £1,500,000 to £1,600,000 apiece (*Ajax*, £1,480,097). Annual maintenance (direct expenditure only), about £133,000.

| *Est.* | *Name* | *Builder* | *Machinery* | *Ordered* | *Begun* | *Completed* |
|---|---|---|---|---|---|---|
| 1929 | *Leander* | Devonport | Vickers-Armstrongs | 18/2/30 | 8/9/30 | 23/3/33 |
| 1930 | *Orion* | Do. | Do. | 26/3/31 | 26/9/31 | 16/1/34 |
| | *Neptune* | Portsmouth | Parsons | 2/3/31 | 24/9/31 | 22/2/34 |
| | *Achilles* | Cammell Laird | Cammell Laird | 11/6/31 | 11/6/31 | 10/10/33 |
| 1931 | *Ajax* | Vickers-Armstrongs | Vickers-Armstrongs | 1/10/32 | 7/2/33 | 3/6/35 |



Neptune. (Observe twin AA.). 1937, "*Fighting Ships.*"

**EMERALD** (19th May, 1920).

**ENTERPRISE** (23rd December, 1919). l pesgole

Displacement, 7,550 and 7,580 tons, respectively.

(*Full load*, over 9,000 tons.)

Complement, 572.

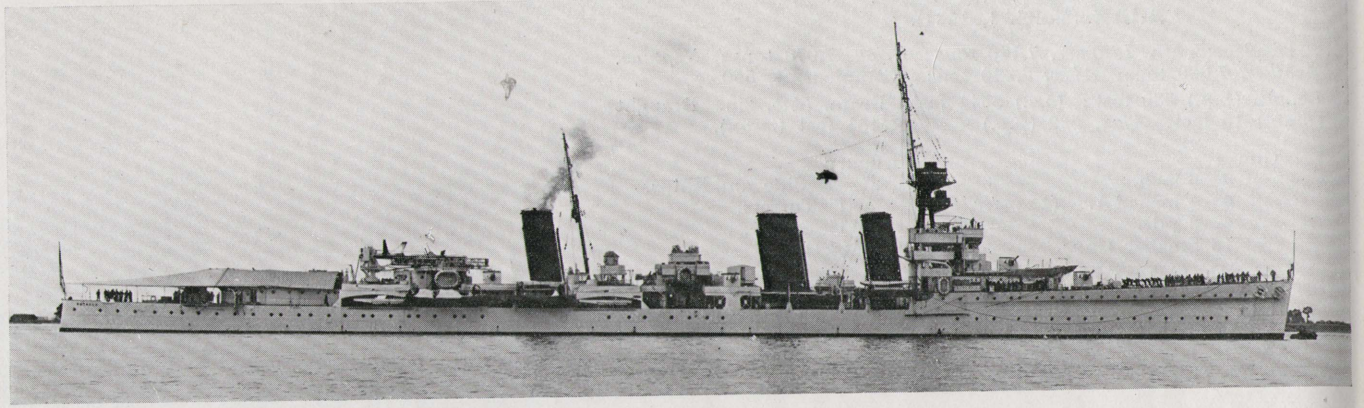
Length {*p.p.* 535 feet, *o.a.* 570 feet} Beam 54½ feet. Draught {*mean* 16½ feet. *max.* feet.}

Guns:
- 7—6 inch, 50 cal.
- 3—4 inch AA.
- 4—3 pdr.
- 2—2 pdr. pom-pom.
- 2 M.G.
- 8 Lewis

Torpedo tubes (21 inch):
- 16, quadrupled, *above water*.

Aircraft:
- 1 with catapult.

Armour (H.T.):
- 3″ Side (amidships).
- 2½″—1½″ Side (bow).
- 2″ Side (stern).
- 1″ Upper Deck (amidships).
- 1″ Deck (over rudder).

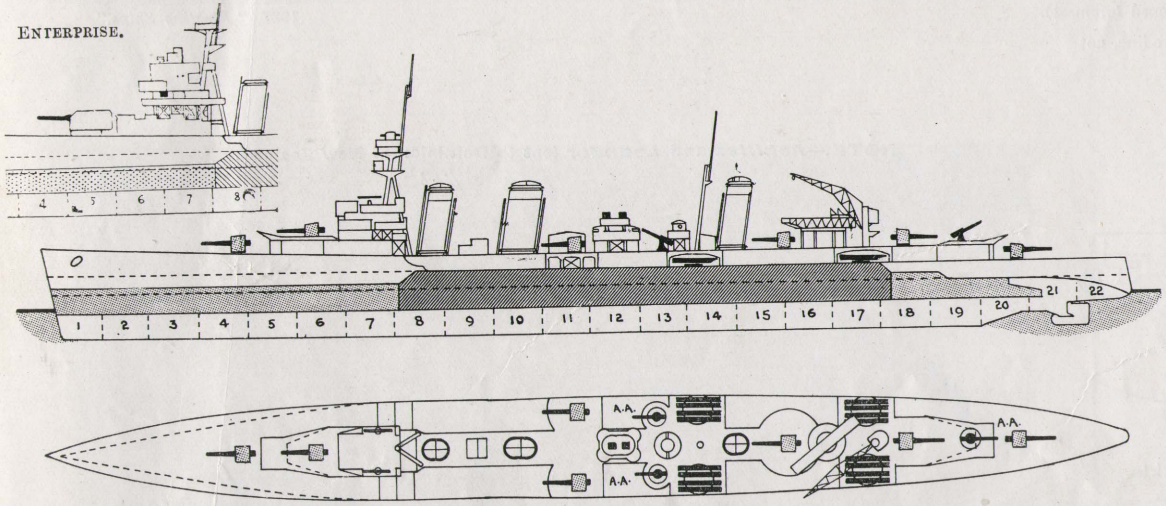


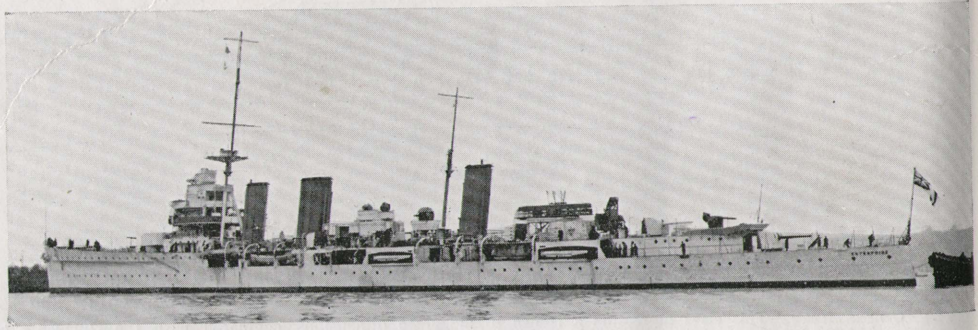
EMERALD.

1934 *Official Photo.*

*Appearance Notes*—Main differences are indicated in plan.

ENTERPRISE.





ENTERPRISE.

1936, *Medway Studios.*

Machinery: Turbines, 4 sets Brown-Curtis (geared). 4 shafts. Designed S.H.P. 80,000= 33 kts. (light), 32 kts. (*full load*). Boilers: 8 Yarrow small tube. Fuel (oil only): *normal*, 650 tons; *maximum*, 1,746 tons.

*Gunnery Notes.*—Elevation of 6 inch, up to 40°. Heavy Director on foremast. R.F. on forward bridge.

*Engineering Notes.*—8 boilers in 4 w.t. compartments, part forward of amidships magazines and part abaft forward engine-room. This arrangement of boiler rooms is responsible for the somewhat unusual spacing of the funnels.

*General Notes.*—Begun under Emergency War Programme. A third ship, *Euphrates*, ordered from Fairfield Co., cancelled. They were designed early in 1918, to have a speed equal to that of any of the German Light Cruisers then existing or likely to be built. Cost of these ships was £1,617,062 for *Emerald* and £1,752,867 for *Enterprise*. Both ships refitted, 1934-36.

| *Name* | *Builder* | *Machinery* | *Ordered* | *Begun* | *Completel* | *Trials: H.P. kts.* | *Turbines* |
|---|---|---|---|---|---|---|---|
| *Emerald*<br>*Enterprise* | *Armstrong<br>†Clydebank | Wallsend<br>Clydebank | 7/3/18<br>7/3/18 | Sept. 23/18<br>June 28/18 | Jan. 14/26<br>Jan., '26 | 80450=32·9 (*Enterprise* not tried). | Brown-Curtis<br>Brown-Curtis |

*Towed to Chatham D.Y., †Devonport D.Y. for completion.

(" D " CLASS—8 Ships.)

**DESPATCH** (24th Sept., 1919), **DIOMEDE** (29th April, 1919),

**DELHI** (23rd Aug., 1918), + **DUNEDIN** (19th Nov., 1918), Цен. Атл. 24.11.41

+? **DURBAN** (29th May, 1919), **DANAE** (26th Jan., 1918),

**DAUNTLESS** (10th April, 1918), **DRAGON** (29th Dec., 1917).

Displacement, 4,850 tons.

С резерв.

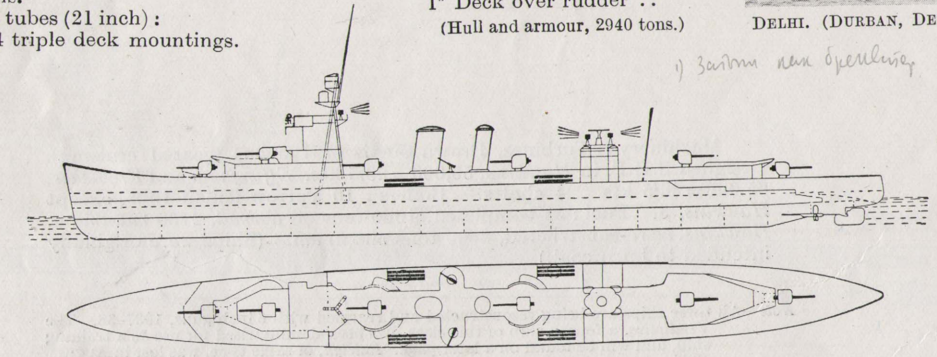
Length { *p.p.* 445 feet, *w.l.* 465½ ,, *o.a.* 472½ ,, } Beam, 46½ ft. Draught { *mean* 14¼ ft. *max.* 16½ ft.

Complements of all, 450/469. All except first two fitted as Flagships.

Guns :
6—6 inch, 50 cal.
3—4 inch AA.
4—3 pdr.
2—2 pdr. pom-pom
2 M.G.
8 Lewis.
Torpedo tubes (21 inch) :
12 in 4 triple deck mountings.

Armour (H.T.) :
3″ Side (amidships) ...
2″, 1¾″, 1½″ Side (bow and stern) .........
1″ Upper deck (amids.
1″ Deck over rudder ..
(Hull and armour, 2940 tons.)

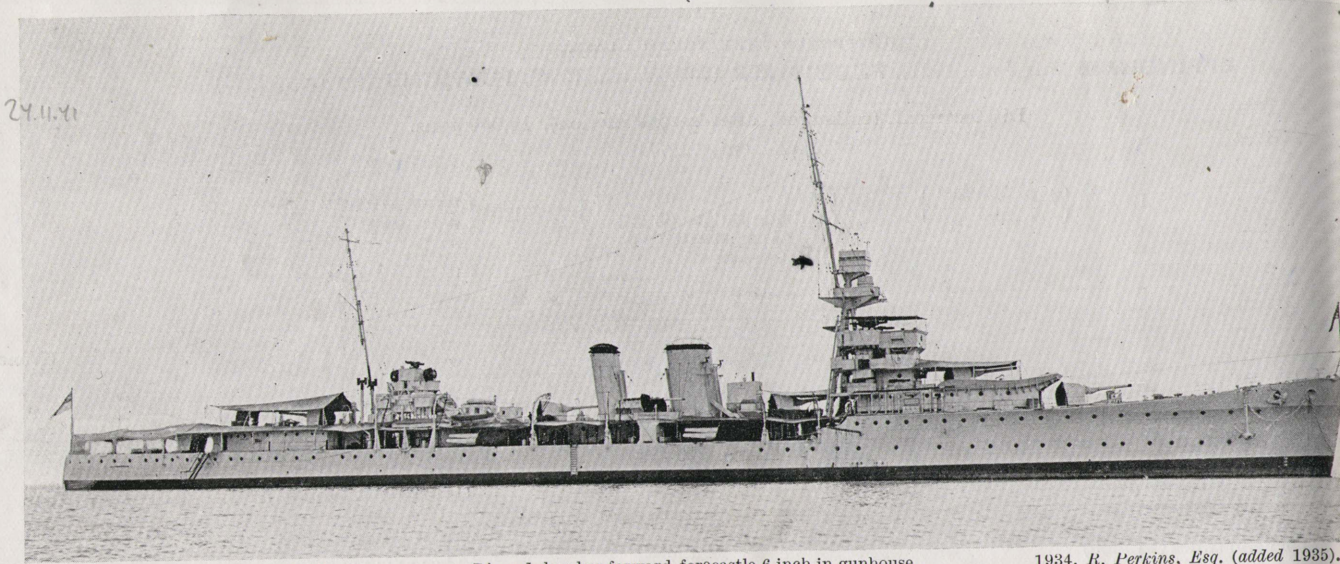
1) Затоп как брекватер 6.6.44



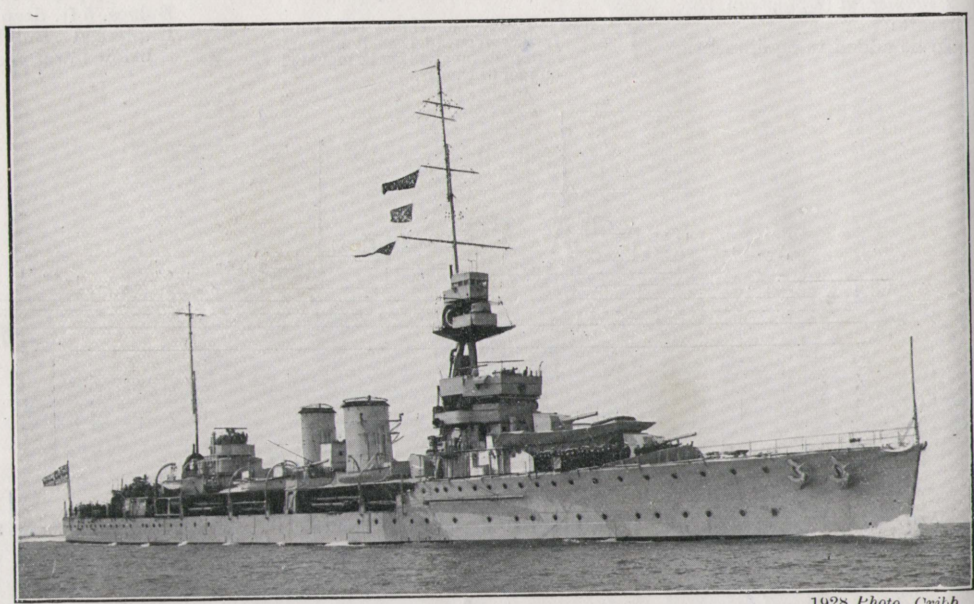
Machinery : Turbines (all-geared), Brown-Curtis or Parsons types. Designed S.H.P. 40,000 = 29 kts. 2 shafts. Boilers : 6 Yarrow (small tube). Oil fuel only : *normal*, 300 tons ; *maximum*, 1050 tons. Machinery and engineering stores = 945 tons.

| *Name* | *Builder* | *Machinery* | *Ordered* | *Begun* | *Completed* | *Trials: H.P. kts.* | *Turbines* |
|---|---|---|---|---|---|---|---|
| *Diomede*<br>*Despatch* | Vickers*<br>Fairfield* | Vickers<br>Fairfield | Mar., 1918<br>Mar., 1918 | June, 1918<br>July, 1918 | 24 Apr, 1922<br>2 June, 1922 | | Parsons<br>Brown-Curtis |
| *Delhi*<br>*Durban* | Armstrong<br>Scotts* | Wallsend<br>Scotts | Sept., 1917<br>Sept., 1917 | 29 Oct., '17<br>Jan., 1918 | June, 1919<br>1 Sept. 1921 | 41,381 = 28·5†<br>41,026 = | Brown-Curtis<br>Brown-Curtis |
| *Danae*<br>*Dauntless*<br>*Dragon*<br>*Dunedin* | Armstrong<br>Palmer<br>Scotts<br>Armstrong | Wallsend<br>Palmer<br>Scotts<br>Hawthorn | Sept., 1916<br>Sept., 1916<br>Sept., 1916<br>Sept., 1917 | Dec., 1916<br>Jan., 1917<br>Jan., 1917<br>Nov., 1917 | July, 1918<br>Dec., 1918<br>Aug., 1918<br>Oct., 1919 | 40,463 =<br>42,808 =<br>40,035 =<br>41,268 = 29·19 | Brown-Curtis<br>Parsons<br>Brown-Curtis<br>Brown-Curtis |

*Towed to following Dockyards for completion : **Despatch* to Chatham, *Durban* to Devonport, *Diomede* to Portsmouth.
† With PVs. out, and on deep draught.



DELHI. (DURBAN, DESPATCH, similar.) *Diomede* has her forward forecastle 6 inch in gunhouse. 1934, *R. Perkins, Esq.* (*added* 1935).



DAUNTLESS. 1928 *Photo, Cribb.*

*General Notes.*—Emergency War Programme ships. Note that first three were ordered *before Carlisle* class. Design generally as *Ceres* class, but lengthened *about* 20 feet, to add a sixth 6-inch between foremast and first funnel; also triple tubes. Cost of *Delhi*, £840,182. Heavy director on foremast. *Dunedin* and *Diomede*, both served in New Zealand Division for over ten years. *Dauntless* badly damaged by grounding off Halifax, Nova Scotia, July, 1928, and completely refitted 1929-30. *Danae, Delhi, Dragon*, all refitted 1929-30.

*Cancelled Ships.—Dædalus, Daring, Desperate, Dryad* (all ordered March, 1918).

[illegible] 12.8.42 Крит 1.6.41

(CARLISLE CLASS—5 SHIPS.)

+ **CAIRO*** (19th Nov., 1918), + **CALCUTTA*** (9th July, 1918), **CARLISLE*** (9th July, 1918), **CAPETOWN*** (28th June, 1919), **COLOMBO*** (18th Dec., 1918).

(CERES CLASS.—FIRST 3 SHIPS.)

**CARDIFF** (ex-*Caprice*) (April 12, 1917). + **CURACOA*** (May 5, 1917). **CERES** (March 24, 1917).

Displacement, "Carlisle" class 4200 tons. "Ceres" class 4290 tons. Complement, 400/437.

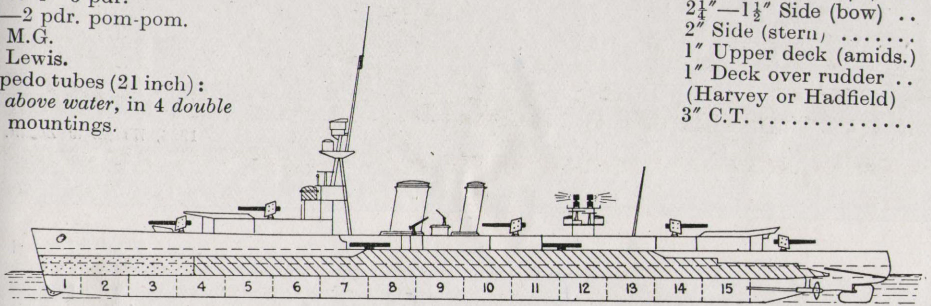
Length { *p.p.* 425 feet / *o.a.* 450 " } Beam, 43½ feet. Draught { *mean* 14 feet 1 inch. / *max.* 16¼ "

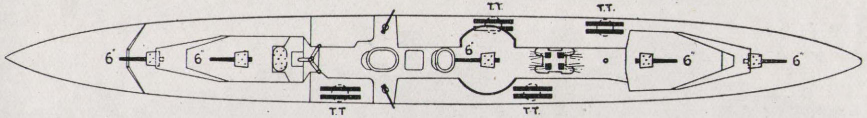
Guns:
- 5—6 inch, 50 cal.
- 2—3 inch AA.
- 2 to 4—3 pdr.
- 2—2 pdr. pom-pom.
- 2 M.G.
- 8 Lewis.

Torpedo tubes (21 inch):
- 8 *above water*, in 4 *double* mountings.

*Fitted as Flagships.

Armour (H.T.):
- 3″ Side (amidships) ...
- 2¼″—1½″ Side (bow) ..
- 2″ Side (stern) .......
- 1″ Upper deck (amids.)
- 1″ Deck over rudder ..
- (Harvey or Hadfield)
- 3″ C.T. ..............





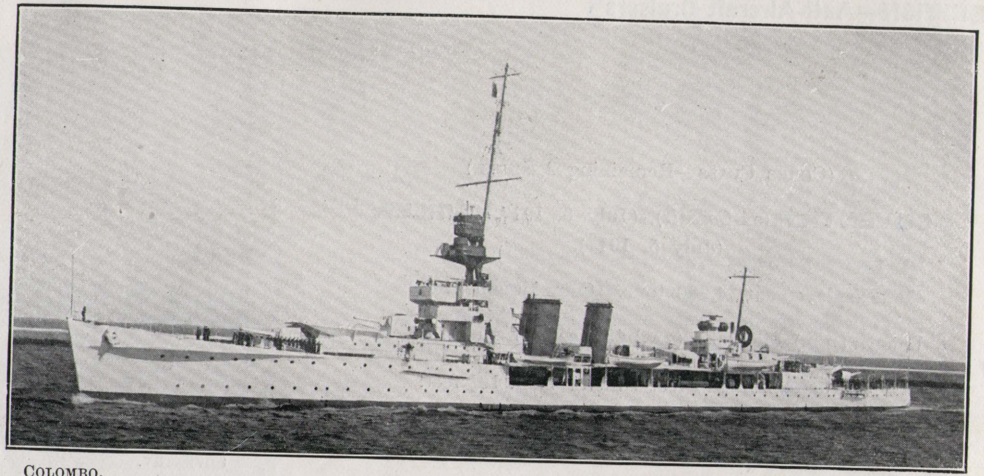
Machinery: Turbines (all-geared), see Table. 2 shafts in all. Designed S.H.P. 40,000 = 29 kts. Boilers: Yarrow. Fuel (oil only): 300 tons, *normal*; *maximum*, 950 tons.

***General Notes.***—*Ceres* class Emergency War Programme ships, ordered April, 1916. Very wet forward, to remedy which defect the later *Carlisle* and *Dragon* classes were given "trawler" bows. Heavy type director on foremast. *Cairo* class Emergency War Programme ships, ordered June-July, 1917, that is *after* the first three units of "D Class" (*Danae, Dragon, Dauntless*) were ordered. In these ships "trawler" bows were added, to remedy defects shown by *Ceres* class. Conning tower also abolished. Heavy director on foremast. *Curacoa* was mined in 1919, and refitted 1919–20. It has been proposed to convert *Cardiff* and *Ceres* into anti-aircraft cruisers.

*To distinguish:* From "*D*" class Cruisers.—Absence of 6 inch between foremast and first funnel.

(For two more ships of *Ceres* class, see following page.)

Столкнов. с лайнером Queen Mary у о. [illegible] 2.10.42

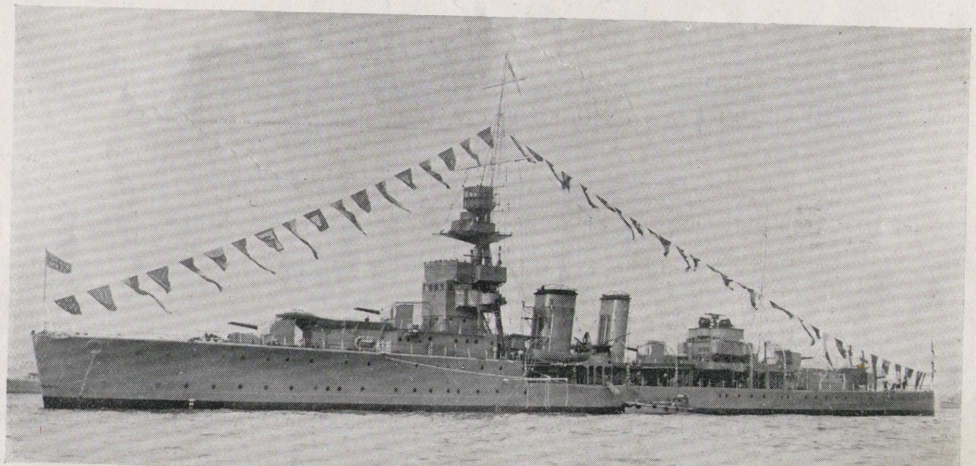


COLOMBO. 1926 *Photo, Grand Studio, Malta.*

*Carlisle* and *Capetown* originally had a hangar forward, but this has been removed and replaced by standard bridge work. *Curacoa* and several others now carry maintopmasts.

| *Name* | *Builder* | *Machinery* | *Begun* | *Completed* | *Trials* *H.P. kts.* | *Turbines* |
|---|---|---|---|---|---|---|
| *Coventry* | Swan Hunter | Wallsend | Aug., 1916 | Feb., 1918 | 39,967= | B.-Curtis A.G. |
| *Curacoa* | Pembroke D.Y. | Harland & Wolff | July, 1916 | Feb., 1918 | 40,428= | B.-Curtis A.G. |
| *Curlew* | Vickers | Vickers | Aug., 1916 | Dec., 1917 | 40,240=28·07 | Parsons A.G |
| *Cardiff* | Fairfield | Fairfield | July, 1916 | July, 1917 | 41,450 = 28·96 | B.-Curtis A.G. |
| *Ceres* | Clydebank | Clydebank | Apr. 26, 1916 | June, 1917 | 39,425 = 29·1 | B.-Curtis A.G. |
| *Cairo* | Cammell Laird | Cammell Laird | 28 Nov.,'17 | 24 Sep.'19 | 40,930=28·45 | Parsons |
| *Calcutta* | Vickers | Vickers | Oct., 1917 | 21 Aug.,'19 | | Parsons |
| *Carlisle* | Fairfield | Fairfield | Oct., 1917 | 11 Nov.'18 | | B.-Curtis |
| *Capetown* | Cammell Laird* | Cammell Laird | 23 Feb.,'18 | Feb., '22 | | Parsons |
| *Colombo* | Fairfield | Fairfield | Dec., 1917 | June, '19 | | B.-Curtis |

*Towed to Pembroke D.Y. for completion.



CURACOA. 1935, "*Fighting Ships.*"

(CERES CLASS—Remaining 2 SHIPS.)

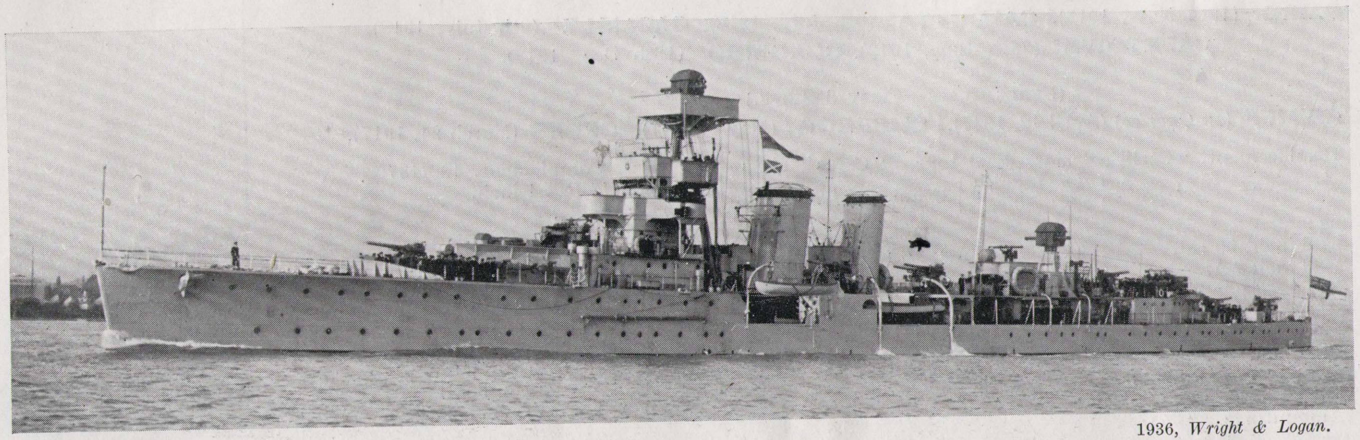
14.9.42 Тобрук 26.5.40

† **COVENTRY** (ex-*Corsair*), (July 6, 1917, † **CURLEW** Нарвик
(July 5, 1917).

Displacement, 4,290 tons. Complement, 400.

Length (*p.p.*) 425 feet; (*o.a.*) 450 feet. Beam, 43½ feet.

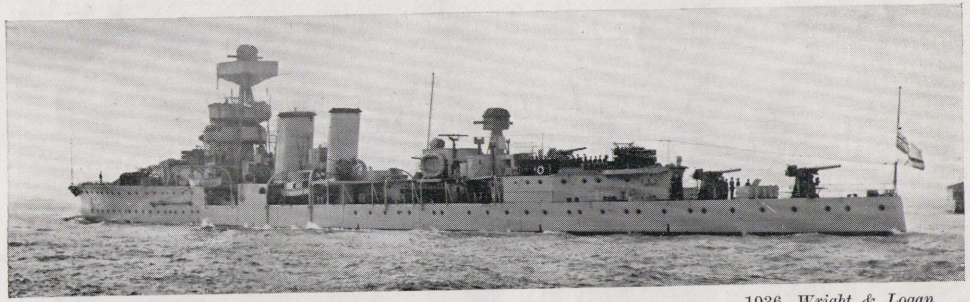
Draught, *mean* 14 feet 1 inch; *max.* 16¼ feet.



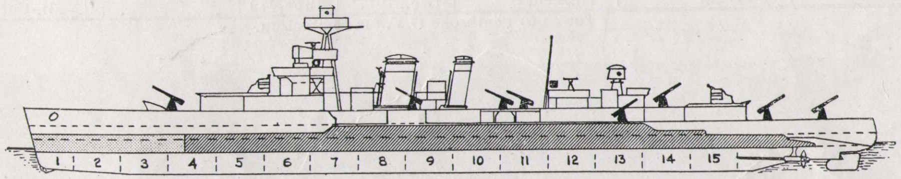
COVENTRY. 1936, *Wright & Logan.*

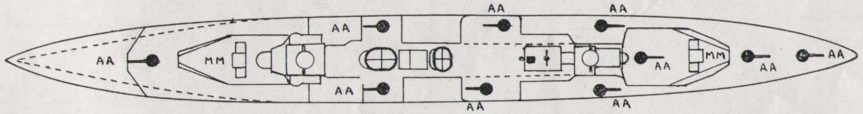
Guns:
- 10—4 inch AA.
- 2—multi-M.G.
- 8—Lewis
- 4—M.G.

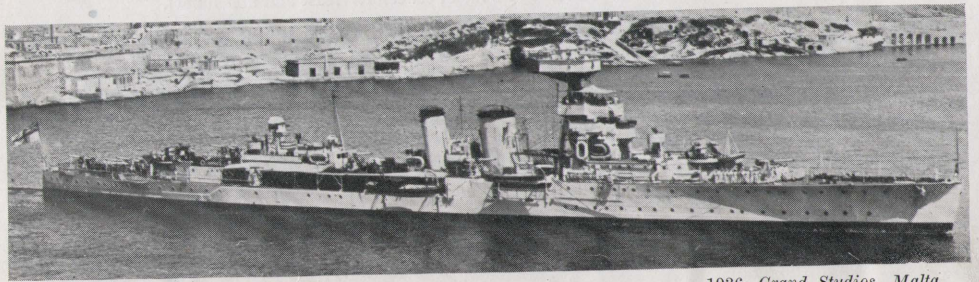
Armour:
- 3″ Side (amidships)
- 2¼″—1½″ Side (bow)
- 2″ Side (stern)
- 1″ Upper Deck
- 1″ Deck over rudder
- 3″ C.T.



COVENTRY. 1936, *Wright & Logan.*



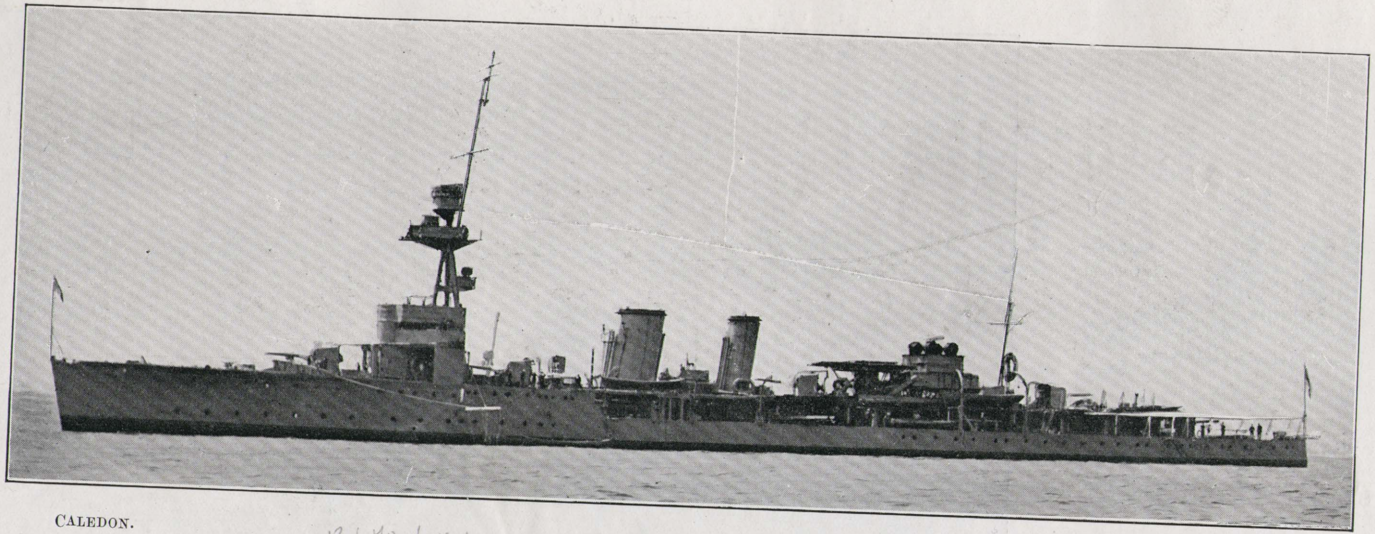




CURLEW. 1936, *Grand Studios, Malta.*

Machinery: All-geared Turbines, Brown-Curtis in *Coventry*, Parsons in *Curlew*. 2 Shafts. Designed S.H.P. 40,000=29 kts. Boilers: Yarrow. Oil fuel: 300 tons *normal*; 950 tons *maximum*.

*Notes.*—These two ships, originally sisters to *Curacoa*, were reconstructed and rearmed in 1935. Particulars of builders, etc., on preceding page.



CALEDON.

1924 *Photo, Abrahams, Devonport.*

13.6.40 [illegible]

(CALEDON CLASS—3 SHIPS.)

**CALEDON*** (Nov. 25, 1916), **CALYPSO** (Jan. 24, 1917), **CARADOC** (Dec. 23, 1916).

Displacement : 4,180 tons. Complement : 400/437.

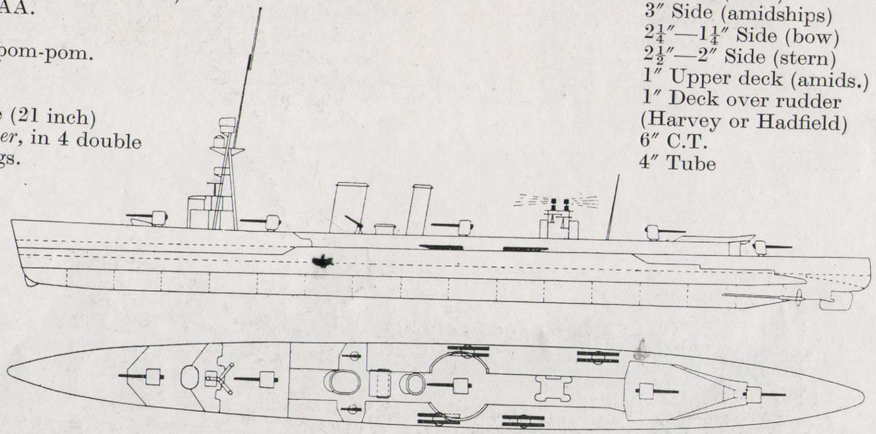
Length {*p.p.* 425 feet / *o.a.* 450 feet} Beam : 42¾ feet. Draught {*mean* 14 ft. 1 in. / *max.* 16¼ feet.

* Fitted as Flagship.

Guns :
- **5**—6 inch, 50 cal. (**Dir. Con.**)
- **2**—3 inch AA.
- **4**—3 pdr.
- **2**—2 pdr. pom-pom.
- **2** M.G.
- **8** Lewis

Torpedo tube (21 inch)
- **8** *above water*, in 4 double mountings.

Armour : (H.T.)
- 3″ Side (amidships)
- 2¼″—1¼″ Side (bow)
- 2½″—2″ Side (stern)
- 1″ Upper deck (amids.)
- 1″ Deck over rudder (Harvey or Hadfield)
- 6″ C.T.
- 4″ Tube



Machinery : Turbines (all-geared), Parsons. 2 screws. Designed S.H.P. : 40,000 = 29 kts. Boilers : 8 Yarrow. Oil fuel : *normal*, 300 tons ; *maximum*, 935 tons.

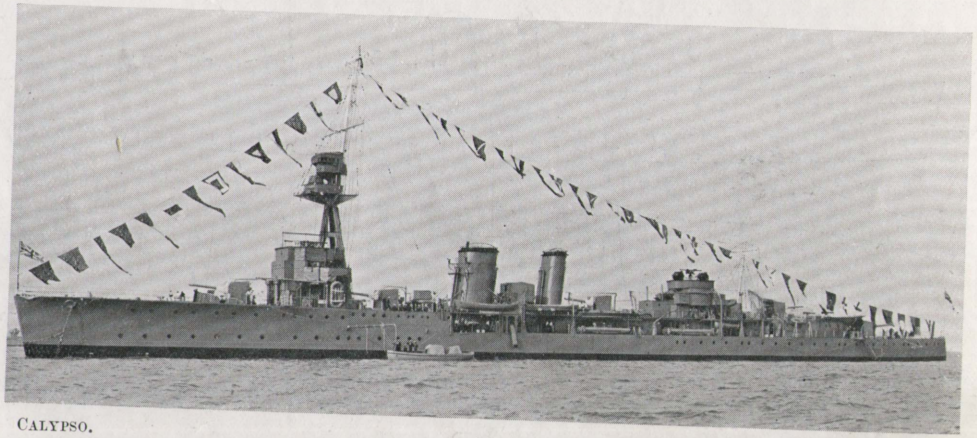
*Gunnery Notes.*—Mark of 6-inch gun introduced in this class and mounted in later Cruisers has about 40° elevation. Heavy type Director.

## Note.

**It has been proposed that these three ships shall be converted into Anti-Aircraft Cruisers on similar lines to COVENTRY and CURACOA, but nothing had been done up to December, 1937.**

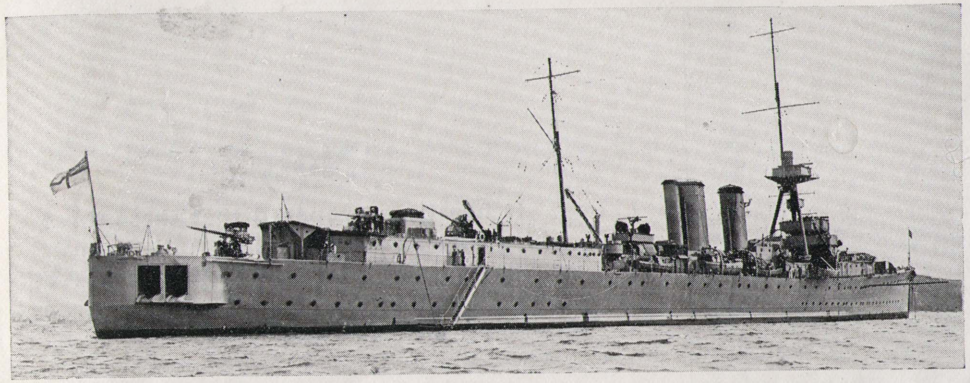
| *Name* | *Builder* | *Machinery* | *Begun* | *Completed* | *Trials* *H.P.* | *kts.* |
|---|---|---|---|---|---|---|
| *Caledon* | Cammell Laird | Cammell Laird | 17/3/16 | 3/17 | 47,887 = | 29 |
| *Calypso* | Scotts S.B. Co. | Scotts | 7/2/16 | 21/6/17 | 43,312 = | 29 |
| *Caradoc* | Vickers | Vickers | 2/16 | 6/17 | 41,196 = | 29 |

*General Notes.*—Emergency War Programme. When new, they could make 29–30 kts. Are very wet forward, the fo'sle 6 inch being almost unfightable in a head sea. *Cassandra*, of this class, built by Messrs. Hawthorn Leslie, lost in Baltic by mine, soon after Armistice was signed. *Caledon* refitted 1926–1927, *Caradoc* 1927–28, *Calypso* 1929.



CALYPSO.

1935 *R.P.*



Showing alteration to Stern. 1932 *Photo, R. Perkins, Esq.*

(SPECIAL "CRUISER-MINELAYER" TYPE—1 SHIP.)

## **ADVENTURE** (18th June, 1924).

"Standard" displacement, 6,740 tons; *normal* displacement, 7,260 tons. Complement, 400.

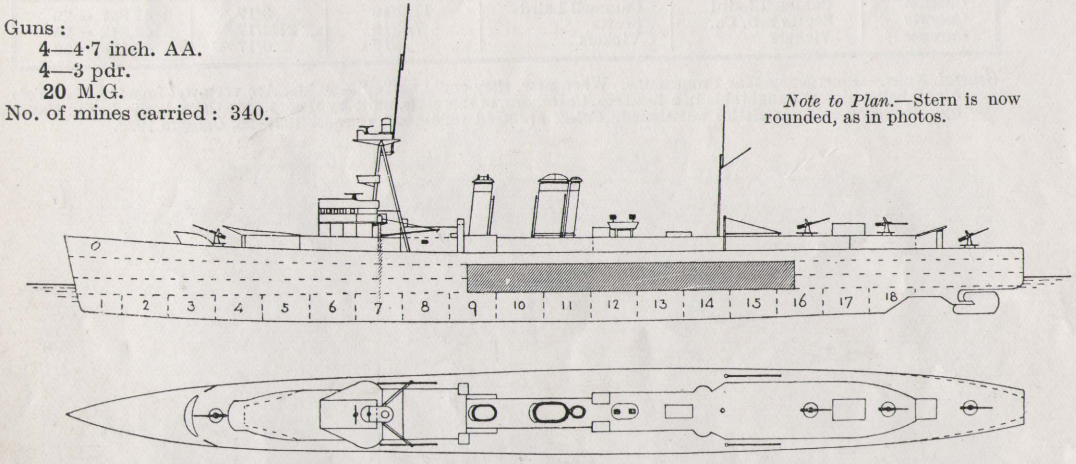
Length {*p.p.*, 500 feet; *o.a.*, 520 feet} Beam, 59 feet, (over bulges) Draught *mean*, $19\frac{1}{4}$ feet.

Armour:

Guns:
- 4—4·7 inch. AA.
- 4—3 pdr.
- 20 M.G.

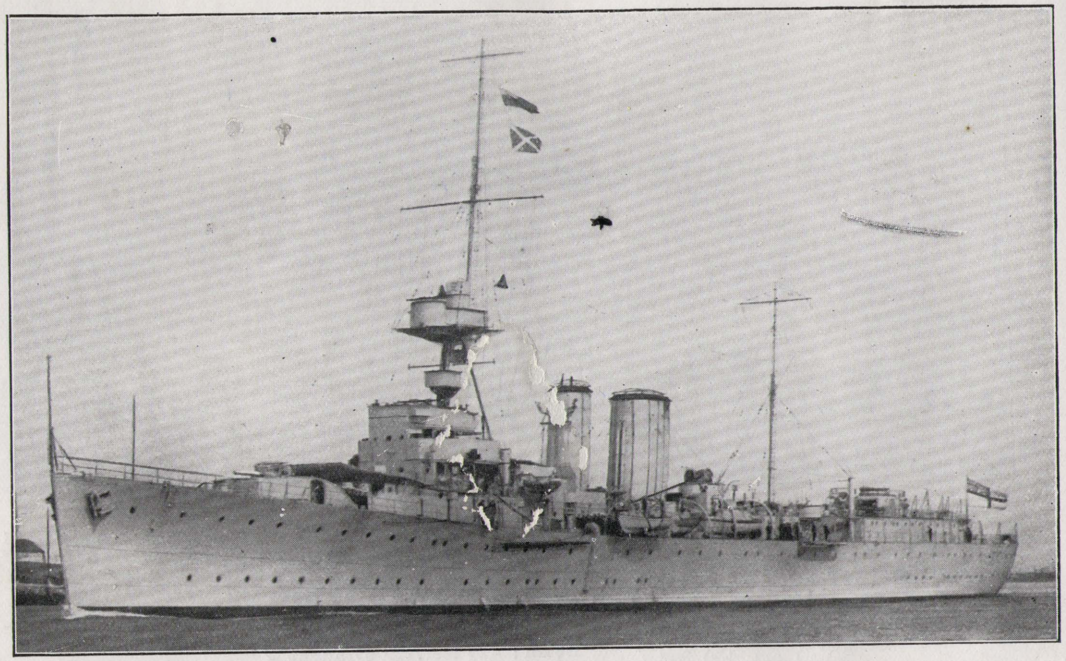
No. of mines carried: 340.

*Note to Plan.*—Stern is now rounded, as in photos.

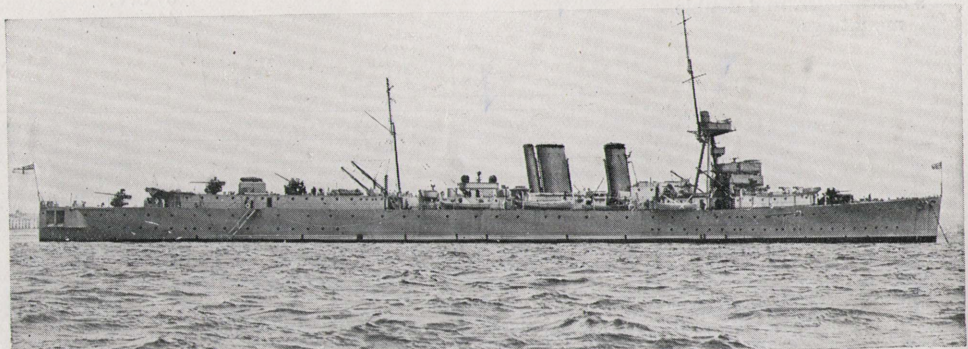


Machinery: Parsons geared turbines, with Diesel engines and electric drive for cruising purposes. 4 shafts. Designed S.H.P. 40,000 = 27·75 kts. Boilers: Admiralty 3-drum type. Fuel (oil only): 1550 tons.

*Notes.*—Laid down at Devonport, Nov. 1922, and completed May, 1927. Originally had flat stern, which was rebuilt to present shape in 1932.



ADVENTURE 1927 *Photo, Gieves, Ltd.*



1932 *Photo, R. Perkins, Esq.*

Стрелец VI-49
[illegible]

8 ЭМ тип D
2610т 8-114
10-40 [illegible]
2-V-533
[illegible]

[illegible]
4 ЭМ тип [illegible]
1980т 4-102
ок 34уз 6-40
2-V-533
У 2-х [illegible] Скорпион обе [illegible] Кроссбоу на [illegible]

24шт ок 2300т
тип Battle 2325т 31уз 4-114 12+14-40 10-533
ок 100шт тип W, V, V

## Pendant Numbers.

The following is a list of Flotilla Leader and Destroyer Pendant Numbers, as officially communicated to *Fighting Ships* by the Admiralty :—

### **D** Flag Superior.

| Pendants. | Ship. | Pendants. | Ship. |
|---|---|---|---|
| D, 00 | Stuart, R.A.N. | D, 50 | |
| D, 01 | Montrose. | D, 51 | |
| D, 02 | ~~Inglefield.~~ | D, 52 | Vega. |
| D, 03 | Icarus. | D, 53 | ~~Venetia.~~ |
| D, 04 | | D, 54 | Vanquisher. |
| D, 05 | | D, 55 | Vesper. |
| D, 06 | ~~Keith.~~ | D, 56 | Wolfhound. |
| D, 07 | | D, 57 | |
| D, 08 | | D, 58 | |
| D, 09 | ~~Imperial.~~ | D, 59 | ~~Skeena,~~ R.C.N. |
| D, 10 | ~~Intrepid.~~ | D, 60 | Campbell. |
| D, 11 | Impulsive. | D, 61 | Ilex. |
| D, 12 | | D, 62 | ~~Wild Swan.~~ |
| D, 14 | | D, 63 | Verity. |
| D, 15 | | D, 64 | Vansittart. |
| D, 16 | ~~Ivanhoe.~~ | D, 65 | ~~Codrington.~~ |
| D, 17 | | D, 66 | Wivern. |
| D, 18 | Kempenfelt. | D, 67 | Wishart. |
| D, 19 | Malcolm. | D, 68 | ~~Vampire,~~ R.A.N. |
| D, 20 | Wallace. | D, 69 | Vendetta, R.A.N. |
| D, 21 | ~~Wryneck.~~ | D, 70 | Mackay. |
| D, 22 | Waterhen, R.A.N. | D, 71 | Volunteer. |
| D, 23 | ~~Vimiera.~~ | D, 72 | ~~Veteran.~~ |
| D, 24 | Walrus. | D, 73 | Vivien. |
| D, 25 | Warwick. | D, 74 | Wanderer. |
| D, 26 | Watchman. | D, 75 | Venomous. |
| D, 27 | Walker. | D, 76 | Witherington. |
| D, 28 | Vanity. | D, 77 | Whitshed. |
| D, 29 | Vanessa. | D, 78 | Wolverine. |
| D, 30 | ~~Whirlwind.~~ | D, 79 | Saguenay, R.C.N. |
| D, 31 | ~~Voyager,~~ R.A.N. | D, 80 | |
| D, 32 | Versatile. | D, 81 | Bruce. |
| D, 33 | Vimy. | D, 82 | Valorous. |
| D, 34 | Velox. | D, 83 | ~~Broke.~~ |
| D, 35 | Wrestler. | D, 84 | Keppel. |
| D, 36 | Vivacious. | D, 85 | Shikari. |
| D, 37 | ~~Vortigern.~~ | D, 86 | Thracian. |
| D, 38 | Ambuscade. | D, 87 | ~~Isis.~~ |
| D, 39 | Amazon. | D, 88 | ~~Wren.~~ |
| D, 40 | | D, 89 | Witch. |
| D, 41 | Walpole. | D, 90 | Douglas. |
| D, 42 | Windsor. | D, 91 | Viceroy. |
| D, 43 | ~~Wessex.~~ | D, 92 | Viscount. |
| D, 44 | ~~Imogen.~~ | D, 93 | Verdun. |
| D, 45 | Westminster. | D, 94 | Whitehall. |
| D, 46 | Winchelsea. | D, 95 | Woolston. |
| D, 47 | Westcott. | D, 96 | Worcester. |
| D, 48 | Vidette. | D, 97 | ~~Whitley.~~ |
| D, 49 | ~~Valentine.~~ | D, 98 | Wolsey. |
| | | D, 99 | Duncan. |

[illegible] Конкорд (керея)

### **H** Flag Superior.

| Pendants. | Ship. | Pendants. | Ship. |
|---|---|---|---|
| H, 00 | Comet. RCN | H, 51 | Scout. |
| H, 01 | Hotspur. | H, 52 | |
| H, 02 | ~~Exmouth.~~ | H, 53 | ~~Dainty.~~ |
| H, 03 | ~~Grenville.~~ | H, 54 | Saladin. |
| H, 04 | ~~Tenedos.~~ | H, 55 | ~~Hostile.~~ |
| H, 05 | Greyhound. | H, 56 | |
| H, 06 | | H, 57 | |
| H, 07 | ~~Defender.~~ | H, 58 | |
| H, 08 | ~~Eclipse.~~ | H, 59 | ~~Gallant.~~ |
| H, 09 | ~~Acasta.~~ | H, 60 | Crusader. RCN ?+ |
| H, 10 | ~~Encounter.~~ | H, 61 | Express. |
| H, 11 | ~~Basilisk.~~ | H, 62 | Faulknor. |
| H, 12 | ~~Achates.~~ | H, 63 | ~~Gipsy.~~ |
| H, 14 | Active. | H, 64 | ~~Duchess.~~ |
| H, 15 | Esk. | H, 65 | ~~Boadicea.~~ |
| H, 16 | ~~Daring.~~ | H, 66 | ~~Escort.~~ |
| H, 17 | Escapade. | H, 67 | ~~Fearless.~~ |
| H, 18 | Sabre. ?? | H, 68 | ~~Foresight.~~ |
| H, 19 | | H, 69 | Foxhound. |
| H, 20 | | H, 70 | Fortune. |
| H, 21 | Scimitar. | H, 71 | |
| H, 22 | ~~Diamond.~~ | H, 72 | |
| H, 23 | Echo. | H, 73 | |
| H, 24 | ~~Hasty.~~ | H, 74 | Forester. |
| H, 25 | | H, 75 | Decoy. |
| H, 26 | Sardonyx. | H, 76 | Fury. |
| H, 27 | ~~Electra.~~ | H, 77 | Boreas. |
| H, 28 | ~~Sturdy.~~ | H, 78 | Fame. |
| H, 29 | Thanet. | H, 79 | ~~Firedrake.~~ |
| H, 30 | Beagle. | H, 80 | ~~Brazen.~~ |
| H, 31 | Griffin. | H, 81 | |
| H, 32 | Rapid | H, 82 | |
| H, 33 | Vanoc. | H, 83 | St. Laurent, R.C.N. |
| H, 34 | | H, 84 | Brilliant. |
| H, 35 | ~~Hunter.~~ | H, 85 | |
| H, 36 | Antelope. | H, 86 | Grenade. |
| H, 37 | Garland. | H, 87 | ~~Hardy.~~ |
| H, 38 | ~~Delight.~~ | H, 88 | ~~Wakeful.~~ |
| H, 39 | Skate. | H, 89 | ~~Grafton.~~ |
| H, 40 | Anthony. | H, 90 | |
| H, 41 | ~~Ardent.~~ | H, 91 | Bulldog. |
| H, 42 | Arrow. | H, 92 | ~~Glowworm.~~ |
| H, 43 | Havock. | H, 93 | ~~Hereward.~~ |
| H, 44 | | H, 94 | |
| H, 45 | ~~Acheron.~~ | H, 95 | Winchester. |
| H, 46 | Tyrant. | H, 96 | |
| H, 47 | ~~Blanche.~~ | H, 97 | Hyperion. |
| H, 48 | ~~Fraser,~~ R.C.N. | H, 98 | |
| H, 49 | Diana. | H, 99 | Hero. |
| H, 50 | ~~Stronghold.~~ | | |

### **L** Flag Superior.

| Pendants. | Ship. |
|---|---|
| L, 03 | ~~Cossack.~~ |
| L, 07 | ~~Afridi.~~ |
| L, 18 | ~~Zulu.~~ |
| L, 20 | ~~Gurkha.~~ |
| L, 21 | ~~Punjabi.~~ |
| L, 24 | ~~Maori.~~ |
| L, 26 | ~~Matabele.~~ |
| L, 31 | ~~Mohawk~~ |
| L, 33 | ~~Somali.~~ |
| L, 36 | Nubian. |
| L, 43 | Tartar. |
| L, 51 | Ashanti. |
| L, 59 | ~~Mashona.~~ |
| L, 67 | ~~Bedouin.~~ |
| L, 75 | Eskimo. |
| L, 82 | ~~Sikh.~~ |

погибшие

Airedale 1050 [illegible] 16 6 42
Aldenham 1025 [illegible] Адриат 14 12 44
Assiniboine 1390 [illegible] 10 11 45
Athabaskan 2000 [illegible] 29 04 44
Belmont 1190 [illegible] Атл 31 12 41
Berkeley 1000 [illegible] Дьепп 19 8 42
Beverley 1190 [illegible] 10 4 43
Blean 1025 [illegible] Оран 11 12 42
Broadwater 1190 [illegible] 18 10 41
Cameron 1020 ? ? 15 12 40
Campbeltown 1090 [illegible] Сен-Назер 28 3 42
Dulverton 1025 [illegible] 13 11 43
Exmoor 1000 [illegible] 25 2 41
Grove 1025 [illegible] 15 6 42
✓Gurkha (ex-Larne) 1920 [illegible] 17 1 42
Hardy (1943) 1710 [illegible] 30 1 44
Harvester 1340 [illegible] 11 3 43
Havant 1340 [illegible] Дюнкерк 1 6 40
Heythrop 1000 [illegible] 20 3 42
Holcombe 1025 [illegible] 12 12 43
Hurricane 1340 [illegible] 24 12 43
Hurworth 1025 [illegible] 22 10 43

Hyperion 1340 [illegible]
Juno 1690 [illegible]
Limbourne 1025 [illegible]
[illegible] 1920 [illegible]
[illegible] 1375 [illegible]
✓[illegible] 1920 [illegible]
✓Nestor 1690 [illegible]
✓Ottawa 1375 [illegible]
[illegible] 1540 [illegible]
Panther 1540 [illegible]
Partridge 1540 [illegible]
Penylan 1025 [illegible]
Puckeridge 1025 [illegible]
Quail 1650 [illegible]
Quentin 1650 [illegible]
Quorn 1000 [illegible]
Rockingham 1190 [illegible]
St Croix 1190 [illegible]
Southwold 1000 [illegible]
Stanley 1190 [illegible]
Swift 1710 [illegible]
Tynedale 1000 [illegible]

### Funnel Markings.

(*a*) *Leaders.* Home and Mediter
Fleets. Fore Funnel: 4 ft.
band round the top.

(*b*) *Divisional Commanders.* For
nel: 2 ft. band 3 feet from the
Home Fleet—White
Mediterranean—Black

(*c*) *Flotillas.* Second funnel is as fo

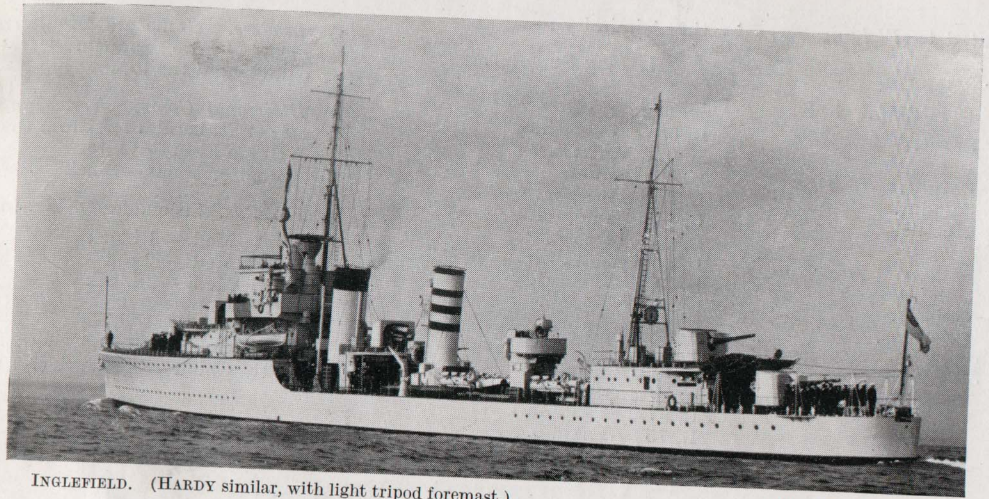
- 1st Med.—1 black
- 2nd Med.—2 red
- 3rd Med.—3 black
- 4th Home—none
- 5th Home—1 white
- 6th Home—2 white
- 8th China—1 black over 1 w

## 3 Admiralty "J" Type.

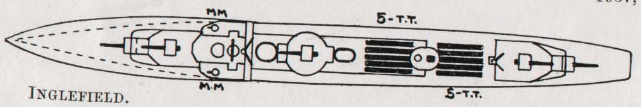
2 *Hawthorn Leslie :* **Jervis, Kelly.** 1 *Unassigned :* **Laforey.**
Displacement : 1,695 tons. Dimensions : 348 × 35 × 9¼ feet. Guns : **6**—4·7 inch, **6** smaller. Tubes : **10**—21 inch. Machinery : Parsons geared turbines. S.H.P. : 40,000 = 36 kts.

2 В Крит 23.5.41
3 нр Сицилия 30 3 44

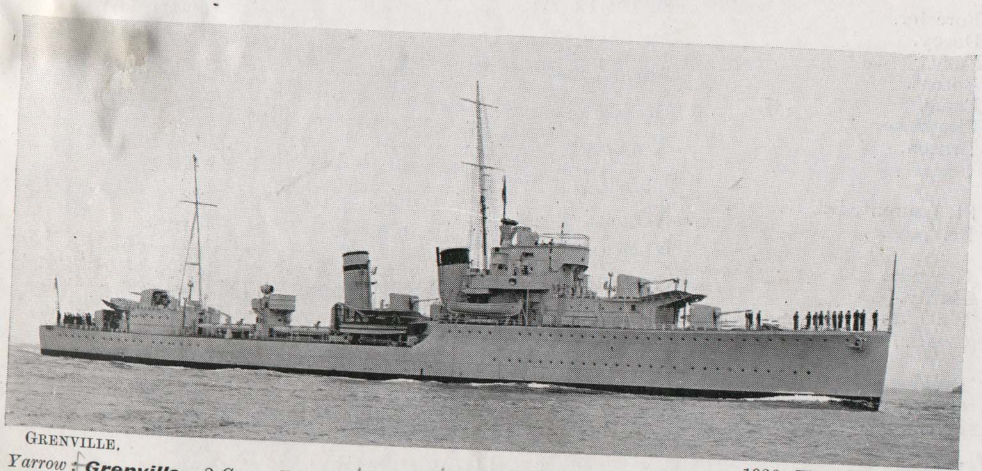
## 3 Admiralty Type.


INGLEFIELD. (HARDY similar, with light tripod foremast.)

1937, *Wright & Logan.*



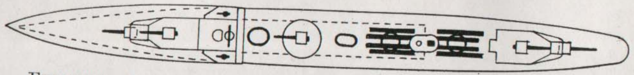
INGLEFIELD.


GRENVILLE.

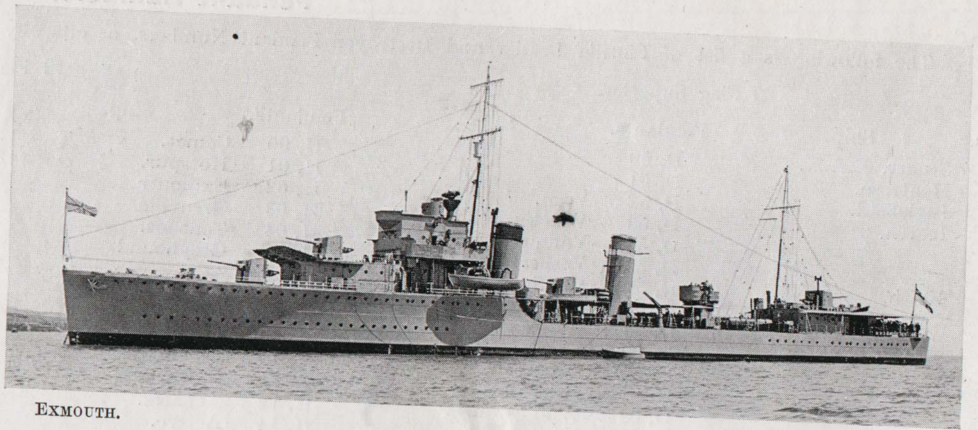
1936, *Wright & Logan.*

1 *Yarrow :* **Grenville.** 2 *Cammell Laird :* **Hardy, Inglefield.**
Displacement : 1,505, 1,485, and 1,455 tons respectively. Complement : 175. Dimensions : *Grenville,* 319 (*p.p.*), 327 (*w.l.*) × 34½ × 8⅔ feet (*mean*) ; others, 326 (*p.p.*), 334 (*w.l.*) × 34 × 8⅔ feet (*mean*). Guns : **5**—4·7 inch, **7** smaller. Tubes : **8**—21 inch (quadrupled) in first two ; **10**—21 inch (quintupled), in *Inglefield.* Machinery : Parsons geared turbines. S.H.P. : 38,000 = 36 kts. Boilers : 4 Admiralty 3-drum (of the side-fired type), 300 lbs. working pressure. Oil fuel : 470 tons (*Grenville*), 475 tons others.
Cost : *Grenville,* £335,928 ; *Hardy,* £343,679 ; *Inglefield,* £354,303.

1. В Сев. море 20.1.40
2. В Нарвик 10.4.40
3. В Анцио 25.2.44


EXMOUTH, FAULKNOR, GRENVILLE, HARDY.

## 2 Admiralty Type.

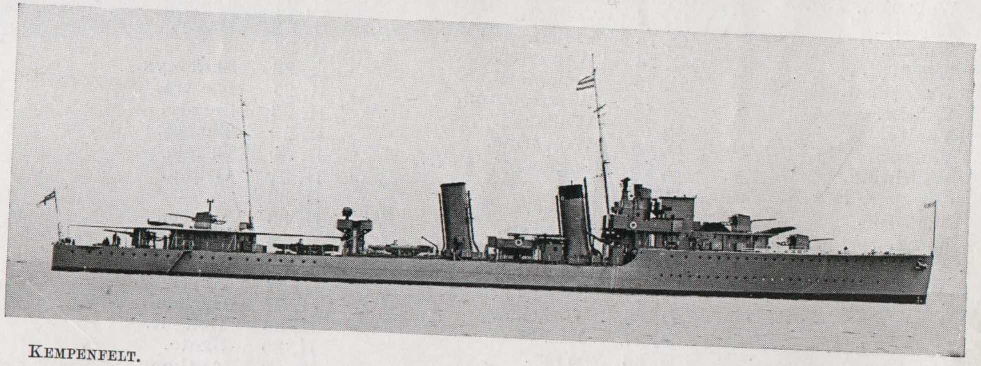

EXMOUTH.

1935, *R. Perkins, Esq.*

1 *Portsmouth Dockyard :* **Exmouth.** 1 *Yarrow :* **Faulknor.**
Displacement, 1475 tons. Complement, 175. Respective Dimensions : 332 (w.l.), 343 (o.a.) × 33¾ × 8⅔ ft. (*mean*); 322 (p.p.), 340 (w.l.) × 33¾ × 8$\frac{7}{12}$ ft. (*mean*). Guns : **5**—4·7 inch, **7** smaller. Tubes : **8**—21 inch (quadrupled). Machinery : Parsons geared turbines (By Fairfield in *Exmouth*). S.H.P. 38,000 = 36 kts. Boilers : 4 Admiralty 3-drum type, 300 lbs. working pressure. Oil fuel : 490 tons.
Cost : *Faulknor,* £330,239.

1. В Сев. море 21.1.40
2.

## 3 Admiralty Type.


KEMPENFELT.

1932 Photo, *R. Perkins, Esq.*

1 *Vickers-Armstrongs (Barrow) :* **Keith.** 1 *White :* **Kempenfelt.** 1 *Portsmouth Dockyard :* **Duncan.**

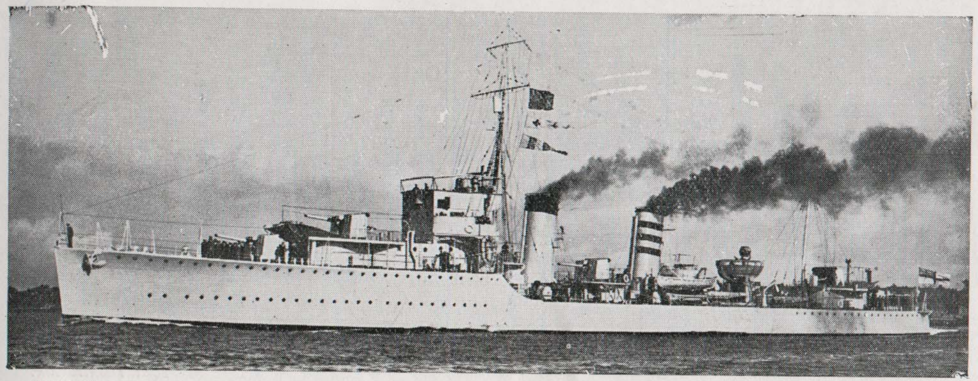
1. В Дюнкерк 1.6

Displacement : 1400 tons (except *Kempenfelt,* 1390 tons). Dimensions : *Keith,* 312 (p.p.), 323 (o.a.) × 32¼ × 8½ (*mean*), 12 feet (*max.*). Others, 317¾ (*p.p.*), 326 (*w.l.*) × 33 × 8⅔ feet (*mean*). Guns : **4**—4·7 inch, **6** smaller. Tubes : **8**—21 inch (quadrupled). Machinery : Parsons geared turbines. S.H.P. : 36,000 = 35·5 kts. (*Keith,* 34,000 = 35 kts.). Boilers : Admiralty 3-drum type, 300 lbs. working pressure. Oil fuel : 470 tons. Complement : 175.

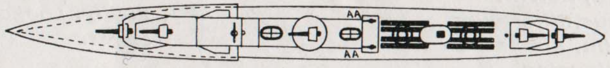
*Appearance Note.*—*Keith, Kempenfelt* and *Duncan* differ mainly from B, C and D type destroyers in having taller foremasts. All vary slightly in build of bridge.

| *Est.* | *Name* | *Begun* | *Launch* | *Comp.* |
|---|---|---|---|---|
| 1928 | *Keith* | 10/29 | 10/7/30 | 9/6/31 |
| 1929 | *Kempenfelt* | 10/30 | 29/10/31 | 30/5/32 |
| 1930 | *Duncan* | 3/9/31 | 7/7/32 | 5/4/33 |
| 1931 | *Exmouth* | 16/5/33 | 7/2/34 | 31/10/34 |
| 1932 | *Faulknor* | 31/7/33 | 12/6/34 | 24/5/35 |

| *Est.* | *Name* | *Begun* | *Launch* | *Comp.* |
|---|---|---|---|---|
| 1933 | *Grenville* | 29/9/34 | 15/8/35 | 1/7/36 |
| 1934 | *Hardy* | 35 | 7/4/36 | 12/36 |
| 1935 | *Inglefield* | 29/4/36 | 15/10/36 | |
| 1936 | *Jervis* | 26/8/37 | | |
| 1937 | *Kelly* | 9/37 | | |



CODRINGTON. 1930 *Photo, Abrahams, Devonport.*

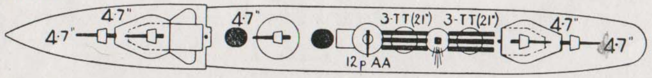


**Codrington.** [illegible] 27.7.40

Built by Swan Hunter. Laid down, 1928, launched, August 7, 1929. Completed, June, 1930.

Displacement: 1540 tons standard. 2000 tons full load. Dimensions: 332 × 33¾ × 12¼ feet (*max.*), 9 feet (*mean*). Guns: 5—4·7 inch, 2—2 pdr. pom-pom 5 M.G. Tubes: 8—21 inch on quadruple mounts. Machinery: Geared Parsons turbines. 2 shafts. Designed S.H.P. 39,000 = 35 kts. Boilers: 4 Admiralty 3-drum, working pressure 300 lbs., with superheaters. Oil fuel: 500 tons. Complement: 185.

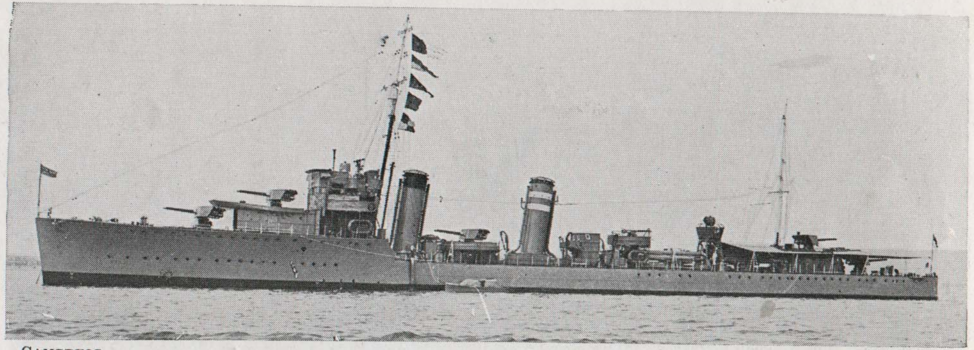
| | | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|---|
| *Bruce* .. | .. | 12/5/17 | 26/2/18 | 29/5/18 |
| *Campbell* | .. | 10/11/17 | 21/9/18 | 21/12/18 |
| *Douglas* | .. | 30/6/17 | 8/6/18 | 30/8/18 |
| *Mackay* | .. | 5/3/18 | 21/12/18 | /6/19 |
| *Malcolm* | .. | 27/3/18 | 29/5/19 | 14/12/19 |
| *Montrose* | .. | 4/10/17 | 10/6/18 | 14/9/18 |



BRUCE

| | | *Begun.* | *Launch.* | *Comp.* | *Trials.* | *Cost.* |
|---|---|---|---|---|---|---|
| *Broke* .. | .. | 10/18 | 23/4/20 | 13/12/24 | 35.6 (*mean*) 38 (*max.*) | £409,394 |
| *Keppel* .. | .. | 11/18 | 16/9/20 | 15/4/25 | 36.1 ,, | 411,374 |
| *Wallace* .. | .. | 8/17 | 26/10/18 | 2/19 | 37.72 | |

## 6 Admiralty Large Design. (SCOTT type.)



CAMPBELL. 1932 *Photo, R. Perkins, Esq.*

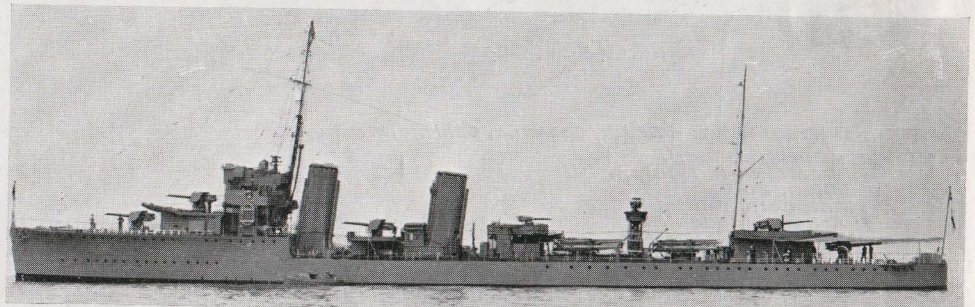
5 *Cammell Laird:* **Bruce, Campbell, Douglas, Mackay** (ex *Claverhouse*), **Malcolm.**
1 *Hawthorn Leslie:* **Montrose.** Stuart

*Note.—Stuart,* of this class transferred to R.A.N. War loss: *Scott.*

Displacement: 1530 tons. Dimensions: 320 (*p.p.*), 332½ (*o.a.*) × 31¾ × 12¼ feet (*max.*), 9¼ feet (*mean*) draught. Guns: 5—4·7 inch B.L. (DIR. CON.), 1—3 inch AA., 2—2 pdr. AA., 1 M.G., 4 Lewis. Tubes: 6—21 inch, in two triple mountings Machinery: Parsons (all-geared) turbines in Cammell-Laird boats: Brown-Curtis in Hawthorn-Leslie boats. Designed S.H.P. 40,000 = 36·5 kts.* Boilers: Yarrow. Oil fuel: 504/401 tons. Complement: 183.

*On *trials*, light load draught; on deep load, 31 kts. with same S.H.P.

## 3 Shakespeare Class.



BROKE. 1937, "*Fighting Ships.*"

3 *Thornycroft:* **Broke** ex-*Rooke*), **Keppel, Wallace.** Displacement: 1480 tons; Dimensions: 318¼ (*p.p.*), 329 (*o.a.*) × 31 ft. 9 in. × 12⅓ feet (*mean*), 14¾ (*max.*) draught. Guns: 5—4.7 inch B.L. (DIR. CON.), 1—3 inch AA., 2—2 pdr. pom-pom. 1 M.G., 4 Lewis. Tubes: 6—21 inch in 2 triple deck mountings.

Machinery: Brown-Curtis all geared turbines. Designed S.H.P. 40,000 = 36 kts.§ 2 shafts. Boilers: Thornycroft. Oil 550/250 tons (*Keppel*, 500/250). Complement, 183. §Light load on *trials*; on deep load, same S.H.P. = 31 kts.

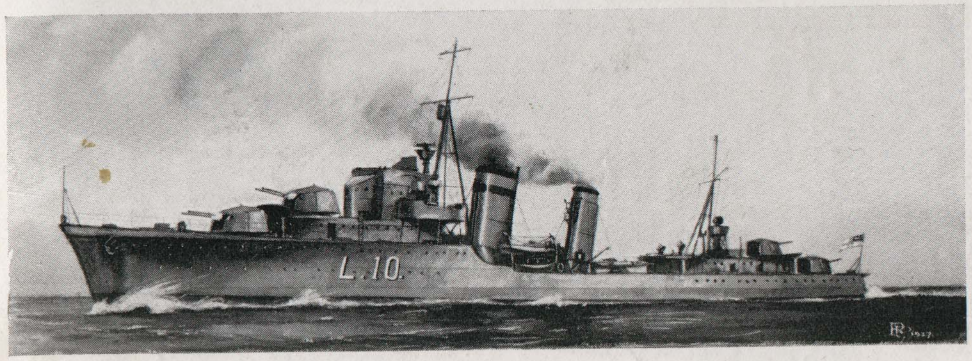
*General Notes.*—Built under War Emergency Programme. Appearance almost exactly same as *Bruce*, *Campbell*, &c., but these boats have the usual big, flat-sided Thornycroft funnels. *Broke* was completed at Pembroke Dockyard, *Keppel* at Portsmouth and Pembroke. No War Losses. *Cancelled* 1918: *Saunders*, *Spragge*, *Barrington*, *Hughes.*

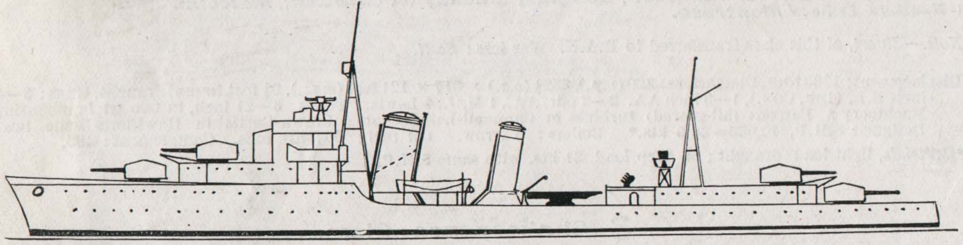
1) [illegible] 8.11.42

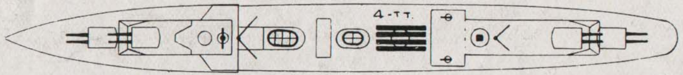
2 *Hawthorn Leslie :* **Jervis, †Kelly**

3 Admiralty "J" Type.

## Destroyers.
## 16 "Tribal" Class







4 *Vickers-Armstrongs (Tyne) :* **†Afridi, †Cossack, Eskimo, †Mashona.**
2 *Fairfield :* **†Gurkha, †Maori.**
2 *Thornycroft :* **†Mohawk, Nubian.**
2 *Stephen :* **†Sikh, †Zulu.**
2 *Scotts :* **†Matabele, †Punjabi.**
2 *Denny :* **Ashanti, †Bedouin.**
2 *Swan Hunter :* **†Somali, Tartar.**

1. 3.5.40 0 Норв
14. 15.6.42 ℓal. Средиз
2 27.10.41 ℓн Гибр.
5 8 4 40 0 Берген
6 12 2 42 ɣ Мальта
7 16 4 41 ℓ9 Средиз

Displacement : 1,850 tons. Complement : . Dimensions : 355½ × 36½ × 9 feet. Guns : **8**—4·7 inch, **8** smaller. Tubes : **4**—21 inch. Machinery : Parsons geared turbines (by Parsons Co. in *Eskimo* and *Mashona* ; by Wallsend Co. in *Somali* and *Tartar* ; and by V.-A., Barrow, in *Afridi* and *Cossack*). S.H.P. : 44,000 = 36 kts. Boilers : 3 Admiralty 3-drum type.

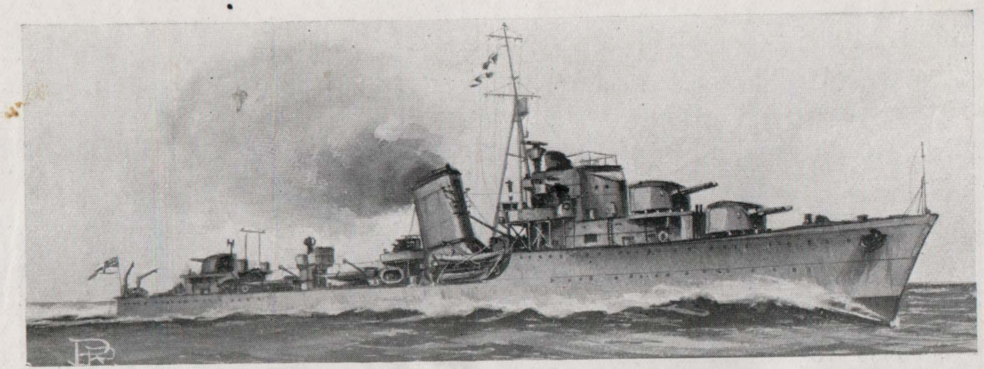
*Note*—*Afridi, Cossack, Somali* and *Tartar* will be fitted as Leaders, though not classed as such. They will not differ in appearance from others.

| *Est.* | *Name* | *Begun* | *Launch* | *Compl.* |
|---|---|---|---|---|
| 1935 | *Afridi*<br>*Cossack* | 9/6/36 | 8/6/37 | *To be* 1938 |
| | *Mohawk* | 16/7/36 | 5/10/37 | |
| | *Nubian* | 10/8/36 | 21/12/37 | |
| | *Zulu* | 10/8/36 | 23/9/37 | |
| | *Gurkha* | 6/7/36 | 7/7/37 | |
| | *Maori* | | 2/9/37 | |

| *Est* | *Name* | *Begun* | *Launch* | *Compl.* |
|---|---|---|---|---|
| 1936 | *Sikh* | 24/9/36 | 17/12/37 | *To be* 1938 |
| | *Matabele* | 1/10/36 | 6/10/37 | |
| | *Punjabi* | | 18/12/37 | |
| | *Ashanti* | 23/11/36 | 5/11/37 | |
| | *Bedouin* | 1/37 | 21/12/37 | |
| | *Eskimo*<br>*Mashona* | 5/8/36 | 3/9/37 | |
| | *Somali* | 26/9/36 | 24/8/37 | |
| | *Tartar* | | 21/10/37 | |

4 28.5.41 0 Ирланд.
11 17.1.42 ℓпл С.Арктик
12 8 5 42 столкн. с King George V
14, 9 14.9.42 берег. 0 Тобрук

## 21 "Javelin" Class

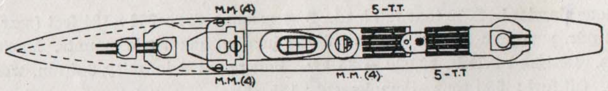


1937 *Illustration.*

2 *Clydebank :* **†Jackal, †Kashmir.**
2 *Denny :* **†Jaguar, †Kandahar.**
2 *Fairfield :* **Jamaica, Kelvin.**
2 *Swan Hunter :* **†Janus, †Khartoum.**
2 *Thornycroft :* **Javelin, Kimberley.**
2 *White :* **†Jersey, †Kingston,**
2 *Yarrow :* **†Jupiter, †Kipling.**

7 *Unassigned :*
**†Lance, Larne,**
**†Legion, †Lightning,**
**†Lively, Lookout,**
**Loyal.**

Displacement : 1,690 tons. Complement : . Dimensions : 348 × 35 × 9 feet. Guns : **6**—4·7 inch, **6** smaller. Tubes : **10**—21 inch. Machinery : Parsons geared turbines. S.H.P. : 40,000 = 36 kts.



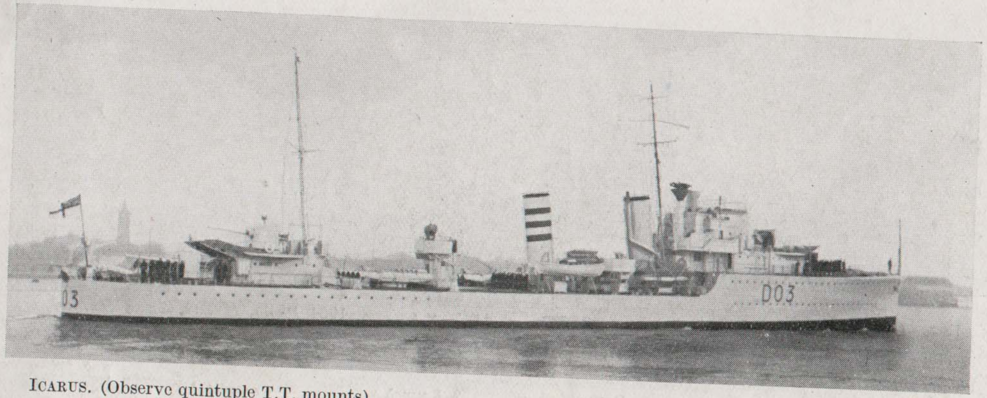
| Est. | *Name* | *Begun* | *Launch* | *Compl.* |
|---|---|---|---|---|
| 1936 | *Jackal* | 24/9/37 | | *To be* 1939 |
| | *Jaguar* | 11/37 | | |
| | *Jamaica* | 5/10/37 | | |
| | *Janus* | 29/9/37 | | |
| | *Javelin* | 10/37 | | |
| | *Jersey* | 28/9/37 | | |
| | *Jupiter* | 20/9/37 | | |

| Est. | *Name* | *Begun* | *Launch* | *Compl.* |
|---|---|---|---|---|
| 1937 | *Kashmir* | 11/10/37 | | *To be* 1939 |
| | *Kandahar* | 1/38 | | |
| | *Kelvin* | 5/10/37 | | |
| | *Khartoum* | 27/10/37 | | |
| | *Kimberley* | 1/38 | | |
| | *Kingston* | 6/10/37 | | |
| | *Kipling* | 20/10/37 | | |

1 11.5.42 0 Сред.
2 23.5.41 0 Крит
3 26 3 42 ℓпл Ливия
4 20 12 41 ɣ -//-
7 23 1 44 0 [illegible]
8 23 6 40 Неисправн. у Перима
11 6 41 ɣ ?
12 11 4 42 ?
13 27.2.42 ℓ Яванск. м.
14 11 5 42 0 Средиз

15 22 10 42 0 в доке Мальт
17 25 3 42 0 у Мальты
18 12 3 43 ℓтк Сев. Афр.
19 11 5 42 0 Средиз

## 8 "Intrepid" class



ICARUS. (Observe quintuple T.T. mounts).

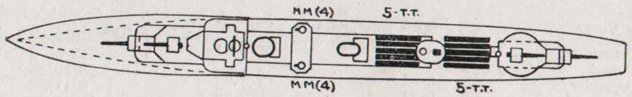
1937, *Wright & Logan.*

| | |
|---|---|
| Programme 1935 | 2 *Clydebank :* **Icarus, Ilex** |
| | 2 *Hawthorn Leslie :* **Imogen, Imperial** |
| | 2 *White :* **Impulsive, Intrepid** |
| | 2 *Yarrow :* **Isis, Ivanhoe** |

Displacement, 1,350 tons. Complement, 145. Dimensions: 312 (*p.p.*), 320 (*w.l.*) × 33 × 8½ feet (*mean*). Guns: **4**—4·7 inch, **7** smaller. Tubes: **10**—21 inch. Machinery: Parsons geared turbines. S.H.P.: 34,000 = 35·5 kts. Boilers: 3 Admiralty 3-drum type, working pressure 350 lbs.

| *Name* | *Begun* | *Launched* | *Completed* |
|---|---|---|---|
| *Icarus* | 3/36 | 25/11/36 | 3/5/37 |
| *Ilex* | 3/36 | 28/1/37 | 7/7/37 |
| *Imogen* | 1/36 | 30/10/36 | 2/6/37 |
| *Imperial* | 1/36 | 11/12/36 | 30/6/37 |

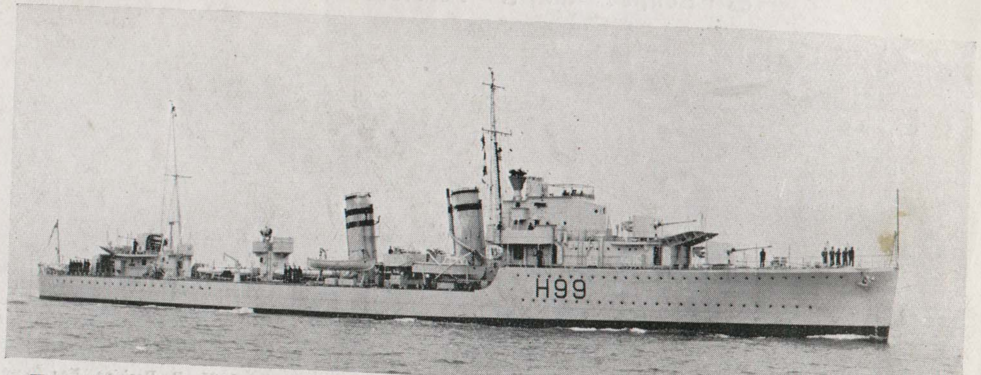
| *Name* | *Begun* | *Launched* | *Completed* |
|---|---|---|---|
| *Impulsive* | 3/36 | 1/3/37 | 4/12/37 |
| *Intrepid* | 1/36 | 30/11/36 | 29/7/37 |
| *Isis* | 2/36 | 12/11/36 | 2/6/37 |
| *Ivanhoe* | 2/36 | 11/2/37 | 24/8/37 |



"I" *class* and GLOWWORM.

3 16 7 40 столкнов. с крейс.
4 29 5 41 а Крит
6 26 9 43 а Эгейск
7 20.7 40 м Нормандия
8 1 9 40 м Сев. море

## 8 "Hero" and 8 "Greyhound" classes.



HERO (HEREWARD similar). Observe bridge.

1936, *Wright & Logan.*

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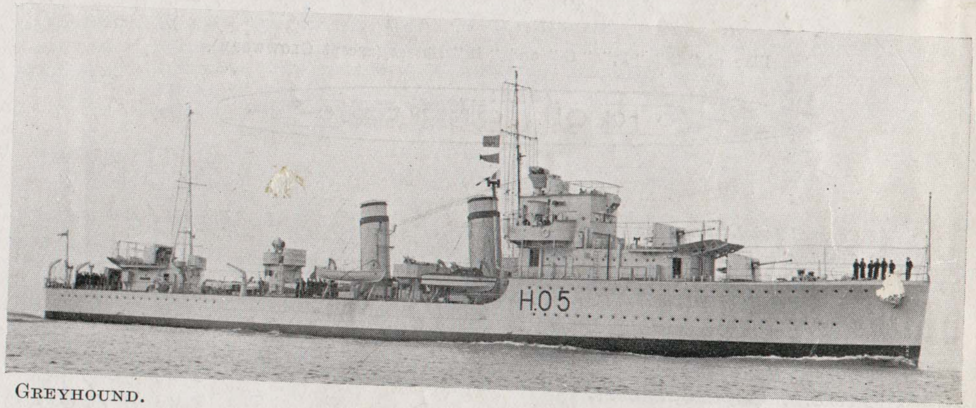


GREYHOUND.

1936, *Wright & Logan*

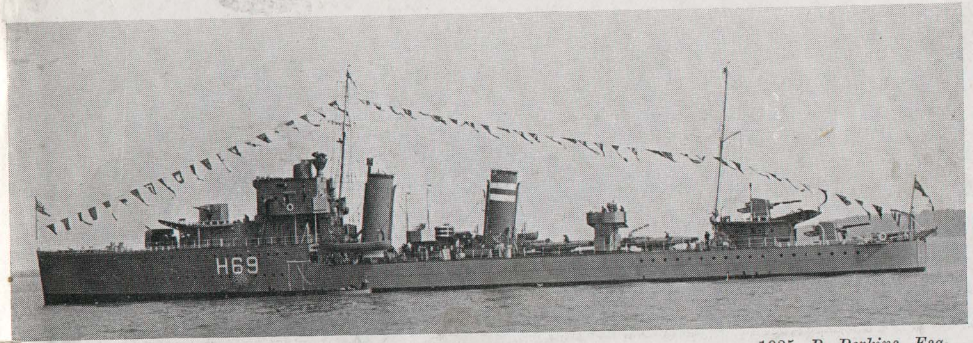
| | | |
|---|---|---|
| Programme 1934 | 2 *Denny :* **Hasty, Havock** | Plan as "E" *class except Glowworm,* as "I" *class.* |
| | 2 *Vickers-Armstrongs (Tyne):* **Hereward, Hero** | |
| | 2 *Scotts :* **Hostile, Hotspur** | |
| | 2 *Swan Hunter :* **Hunter, Hyperion** | |
| Programme 1933 | 2 *Stephen :* **Gallant, Grenade** | |
| | 2 *Fairfield :* **Garland, Gipsy** | |
| | 2 *Thornycroft :* **Glowworm, Grafton** | |
| | 2 *Vickers-Armstrongs (Barrow) :* **Greyhound, Griffin** | |

Displacement, 1,335 tons (except *Glowworm,* 1,345 tons). Complement, 145. Dimensions: 312 (*p.p.*), 320 (*w.l.*), 323 (*o.a.*) × 33 × 8½ feet (*mean*). Guns: **4**—4·7 inch, **7** smaller. Tubes: **8**—21 inch (*Glowworm,* **10**), Machinery: Parsons geared turbines (by Parsons Co. in *Hereward* and *Hero;* by Wallsend Co. in *Hunter* and *Hyperion*). S.H.P. 34,000 = 35·5 kts. Boilers: 3 Admiralty 3-drum type. Oil fuel: 455 tons. Cost averages just over £300,000 apiece.

| *Name* | *Begun* | *Launch* | *Comp.* |
|---|---|---|---|
| *Gallant* .. .. | 15/9/34 | 26/9/35 | 25/2/36 |
| *Grenade* .. | 3/10/34 | 12/11/35 | 28/3/36 |
| *Garland* .. | 22/8/34 | 24/10/35 | 3/3/36 |
| *Gipsy* .. .. | 5/9/34 | 7/11/35 | 22/2/36 |
| *Hasty* .. .. | 4/35 | 5/5/36 | 11/11/36 |
| *Havock* .. | 15/5/35 | 7/7/36 | 18/1/37 |
| *Hereward* | 28/2/35 | 10/3/36 | 9/12/36 |
| *Hero* | | | 23/10/36 |

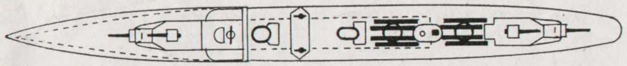
| *Name* | *Begun* | *Launch* | *Comp.* |
|---|---|---|---|
| *Glowworm* .. | 15/8/34 | 22/7/35 | 22/1/36 |
| *Grafton* .. .. | 30/8/34 | 18/9/35 | 20/3/36 |
| *Greyhound* .. | 20/9/34 | 15/8/35 | 31/1/36 |
| *Griffin* .. .. | 20/9/34 | 15/8/35 | 6/3/36 |
| *Hostile* .. | 27/2/35 | 24/1/36 | 10/9/36 |
| *Hotspur* .. | | 23/3/36 | 29/12/36 |
| *Hunter* .. | 26/3/35 | 25/2/36 | 20/9/36 |
| *Hyperion* .. | | 8/4/36 | 3/12/36 |

## 8 "Eclipse" and 8 "Fearless" class



FOXHOUND (and others except *Esk* and *Express*). 1935, *R. Perkins, Esq.*

Plan of "E," "F," "G" and "H" classes (except GLOWWORM).



1. 23 7 41 | Средиз
2 12 8 42 / Средиз
8 17 12 42 / п/л Атл.

Programme 1932:
- 2 *Cammell Laird.* †**Fearless,** †**Foresight.**
- 2 *Clydebank.* **Foxhound, Fortune.**
- 2 *White.* **Forester, Fury.**
- 2 *Vickers-Armstrongs (Tyne):* **Fame,** †**Firedrake.**

2 23 10 43 ♉ Эгейск
4 11 7 40 п/л Средиз
5 1 9 40 ♉ Северн
7 27 2 42 } Яванск
8 1 3 42 }

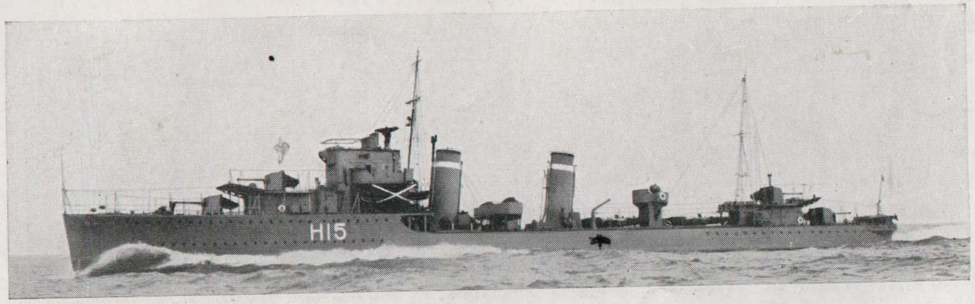
Programme 1931:
- 2 *Denny.* **Echo,** †**Eclipse.**
- 2 *Scotts.* **Escapade,** †**Escort.**
- 2 *Swan Hunter.* †**Esk, Express.**
- 2 *Hawthorn Leslie.* †**Electra,** †**Encounter.**

Displacement: 1,375 tons *Eclipse* class and *Fearless*; others, 1,350 tons.
Complement: 145.
Guns: 4—4·7 inch. 7 smaller.
Tubes: 8—21 inch.
2 D.C. Throwers.

Dimensions: $318\frac{1}{4}$ (*p.p.*), 326 (*w.l.*), 329 (*o.a.*) × $33\frac{1}{4}$ × $8\frac{1}{2}$ feet (*mean*).
H.P.: 36,000 = 35·5 kts.
Parsons geared Turbines (by Wallsend Co. in *Esk* and *Express*; by Parsons Co. in *Fame* and *Firedrake*; and by Builders in others).
Boilers: 3 Admiralty 3-drum type, working at 300 lbs. pressure, with 200° superheat.
Oil fuel: 480 tons.

*General Note.*—*Esk* and *Express* are fitted as mine-layers and have a light tripod aft to avoid shrouds. Average cost approaches £300,000 apiece. Annual maintenance (direct expenditure), £41,000.

*Engineering Notes.*—Average speed of class on trials with designed horse power was 36·7 kts. Some reported to have reached 38 kts. Radius at 15 kts., 6,000 miles.



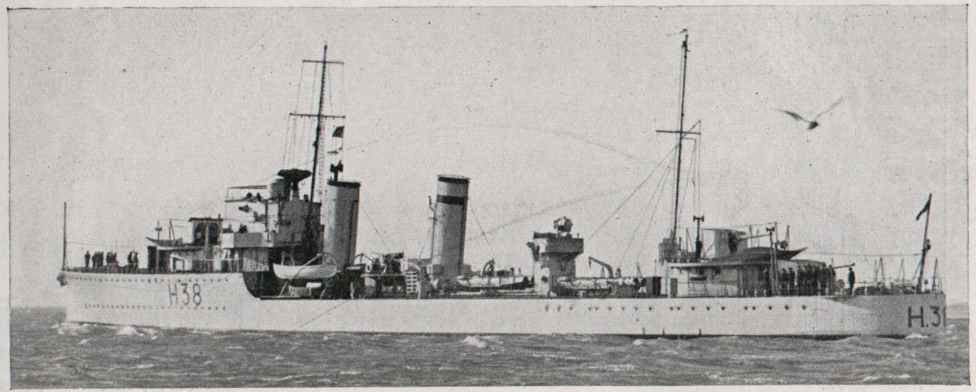
ESK. (*Express* similar.) 1934 *Photo, Messrs. Swan Hunter.*

| *Name* | *Begun* | *Launch* | *Completed* |
|---|---|---|---|
| *Fearless* | 17/7/33 | 12/5/34 | 22/12/34 |
| *Foresight* | 21/7/33 | 29/6/34 | 15/5/35 |
| *Foxhound* | 21/8/33 | 12/10/34 | 6/6/35 |
| *Fortune* | 25/7/33 | 29/8/34 | 27/4/35 |
| *Forester* | 15/5/33 | 28/6/34 | 29/3/35 |
| *Fury* | 19/5/33 | 10/9/34 | 18/5/35 |
| *Fame* | 5/7/33 | 28/6/34 | 26/4/35 |
| *Firedrake* | 5/7/33 | 28/6/34 | 30/5/35 |
| *Echo* | 20/3/33 | 16/2/34 | 25/10/34 |
| *Eclipse* | 22/3/33 | 12/4/34 | 1/12/34 |
| *Escapade* | 30/3/33 | 30/1/34 | 3/9/34 |
| *Escort* | | 29/3/34 | 6/11/34 |
| *Esk* | 23/3/33 | 19/3/34 | 2/10/34 |
| *Express* | | 29/5/34 | 3/11/34 |
| *Electra* | 15/3/33 | 15/2/34 | 17/9/34 |
| *Encounter* | | 29/3/34 | 9/11/34 |

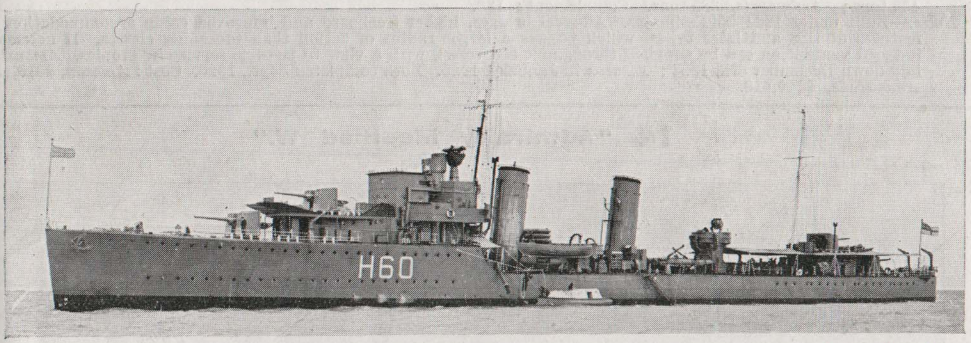
| *Name* | *Begun* | *Launch* | *Completed* |
|---|---|---|---|
| *Crusader* | 12/9/30 | 30/9/31 | 2/5/32 |
| *Comet* | | | 2/6/32 |
| *Defender* | 6/31 | 7/4/32 | 28/10/32 |
| *Diamond* | 9/31 | 8/4/32 | 2/11/32 |
| *Daring* | 6/31 | 7/4/32 | 24/11/32 |
| *Decoy* | 6/31 | 7/6/32 | 4/4/33 |
| *Dainty* | 20/4/31 | 3/5/32 | 3/1/33 |
| *Delight* | 22/4/31 | 2/6/32 | 30/1/33 |
| *Diana* | 6/31 | 16/6/32 | 20/12/32 |
| *Duchess* | 6/31 | 19/7/32 | 24/1/33 |

| *Name* | *Begun* | *Launch* | *Completed* |
|---|---|---|---|
| *Basilisk* | 19/8/29 | 6/8/30 | 4/3/31 |
| *Beagle* | 11/10/29 | 26/9/30 | 9/4/31 |
| *Blanche* | 31/7/29 | 29/5/30 | 2/31 |
| *Boadicea* | 12/7/29 | 23/9/30 | 3/31 |
| *Boreas* | 7/29 | 18/7/30 | 2/31 |
| *Brazen* | | 25/7/30 | 3/31 |
| *Brilliant* | 9/7/29 | 9/10/30 | 2/31 |
| *Bulldog* | 10/8/29 | 6/12/30 | 3/31 |
| *Acasta* | 13/8/28 | 7/8/29 | 11/2/30 |
| *Achates* | 11/9/28 | 4/10/29 | 27/3/30 |
| *Acheron* | 29/10/28 | 18/3/30 | 13/10/31 |
| *Active* | 10/7/28 | 9/7/29 | 9/2/30 |
| *Antelope* | 11/7/28 | 27/7/29 | 20/3/30 |
| *Anthony* | 30/7/28 | 24/4/29 | 14/2/30 |
| *Ardent* | 30/7/28 | 26/6/29 | 14/4/30 |
| *Arrow* | 20/8/28 | 22/8/29 | 14/4/30 |

## 8 "Defender" class and 2 "Crusader" class.



DELIGHT. (All *Defender* class similar). *Added* 1935, *Wright & Logan.*



CRUSADER. (*Comet* similar). (Observe H.S.M.S. gear aft). 1937, "*Fighting Ships.*"

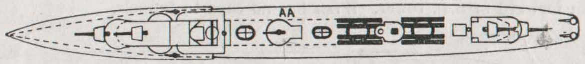
Programme 1929 { 2 *Portsmouth D.Y.*: **Crusader, Comet.**

Programme 1930 {
2 *Vickers-Armstrongs* (*Barrow*): **Defender, Diamond.**
2 *Thornycroft*: **Daring, Decoy.**
2 *Fairfield*: **Dainty, Delight.**
2 *Palmers*: **Diana, Duchess.**

3 12 7.41 | Тобрук
4 27 4 41 | Неаполь
5 8 2 40 п/л Cel.
7 24 2 41 ∀ Тобрук
8 29 7 40 | Дувр
10 13 12 39 столкн Cel, канал

*Special Note.*—Two more ships of *Crusader* class, *Fraser*, ex-*Crescent* and *St. Laurent*, ex-*Cygnet*, were acquired by the Royal Canadian Navy early in 1937, and will be found on a later page.

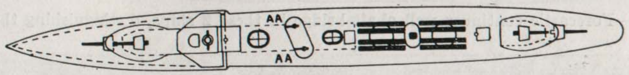
+ Ottava

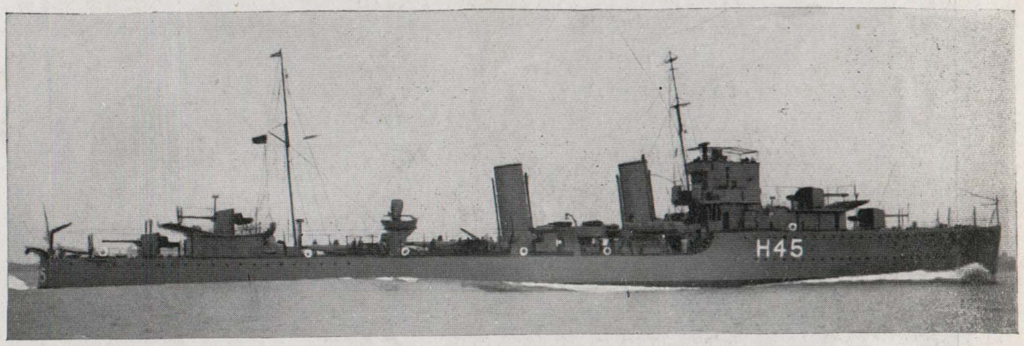


Displacement: 1,375 tons.
Complement: 145.
Guns: 4—4·7 inch. 7 smaller.
Tubes: 8—21 inch.

Dimensions: 317¾ (*pp.*), 326 (*w.l.*) × 33 × 8½ feet (*mean*).
H.P.: 36,000 = 35·5 kts.
Parsons geared Turbines (by Hawthorn Leslie in *Crusader* and *Comet*).
Boilers: 3 Admiralty 3-drum type.
Oil: 470 tons.

## 8 "Beagle" class and 8 "Acasta" class.





ACHERON. (All *Acasta* class similar). (Observe H.S.M.S. gear aft). 1931 *Photo, Cribb.*

Programme 1928 {
2 *Clydebank*: **Basilisk, Beagle.**
2 *Hawthorn Leslie*: **Blanche, Boadicea.**
2 *Palmers*: **Boreas, Brazen.**
2 *Swan Hunter*: **Brilliant, Bulldog.**
Displacement, 1360 tons.

Programme 1927 {
2 *Clydebank*: **Acasta, Achates.**
1 *Thornycroft*: **Acheron.**
2 *Hawthorn Leslie*: **Active, Antelope.**
2 *Scotts*: **Anthony, Ardent.**
1 *Vickers-Armstrongs* (*Barrow*): **Arrow.**
Displacement: 1,350 tons.

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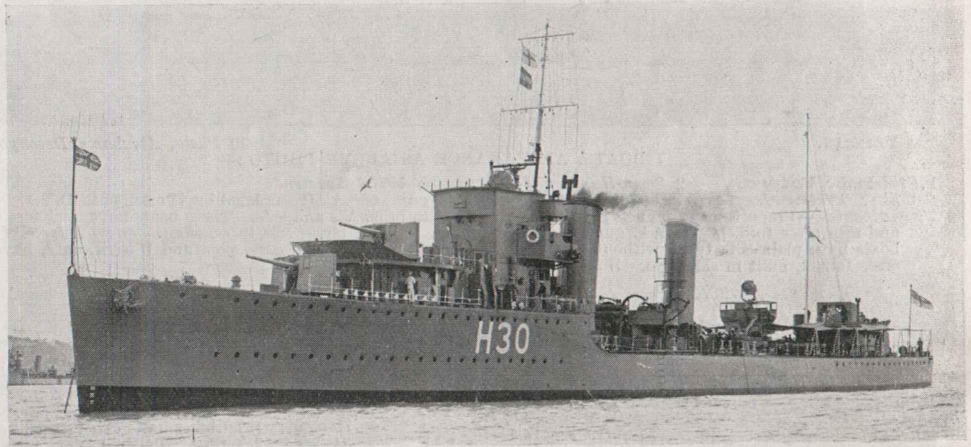
Dimensions: 312 (*p.p.*), 323 (*o.a.*) × 32¼ × 12 feet (*max.*), 8½ feet (*mean*). Guns: 4—4·7 inch, 2—2 pdr. pom-pom, 5 M.G. Tubes: 8—21 inch on quadruple mounts. Machinery: Parsons geared Turbines (by Parsons Co. in *Acheron*). 2 shafts. Designed S.H.P., 34,000 = 35 kts. Boilers: 3 Admiralty 3-drum type, with superheaters (*see notes*). Oil fuel: 380 tons (except *Acheron*, 360 tons). Complement, 138.

*General Notes.*—All laid down 1928, under 1927–28 Estimates. Completed 1930. A very successful class, all having exceeded designed speed with ease. Thus *Arrow* maintained 36·7 kts. with 34,119 H.P. for 6 hours, full power figures being those recorded at boiler capacity for this period. No short period spurts were included in the trials. *Acheron* is fitted with special 500 lb. pressure boilers, with a steam temperature of 750° F. In others of class, figures are 300 lbs. and 600° respectively. All have proved economical steamers, *Acasta* class averaging ·81 lb. (*Acheron* ·608 lb.) fuel per S.H.P. per hour, and *Beagle* class ·73 lb. per S.H.P. per hour.

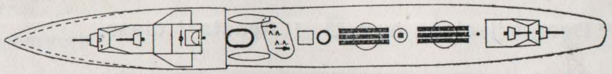
*Torpedo Note.*—These are the first destroyers in which tubes are quadruply mounted.



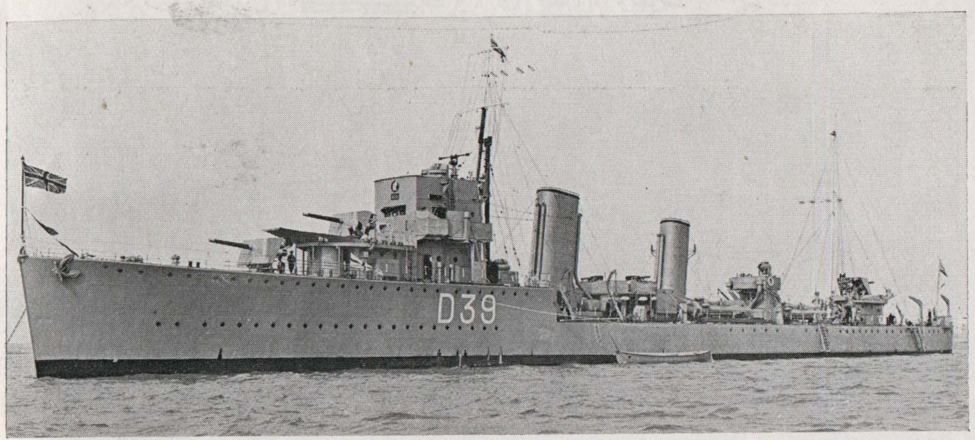
BEAGLE. (All this class similar; no H.S.M.S. gear). 1937, "*Fighting Ships.*"

## 2 "A" Type.

AMAZON.

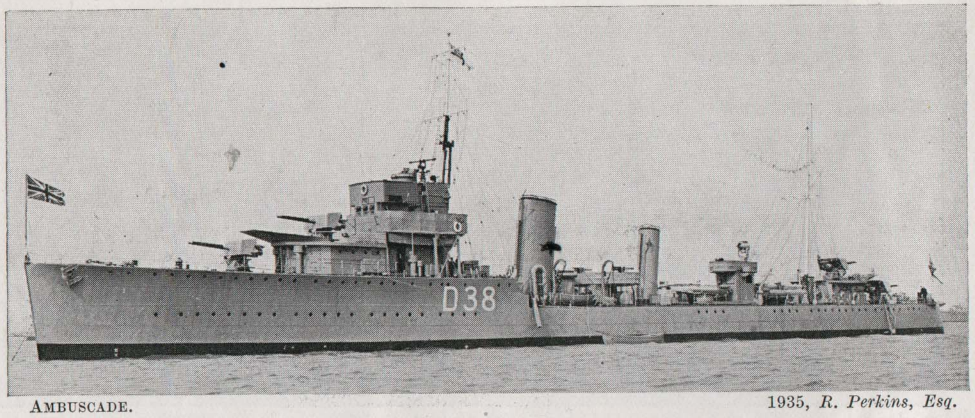


*Appearance Note.*—Forecastle continues well abaft bridge in these 2 ships, distinguishing them from other classes.



AMAZON. 1935, *R. Perkins, Esq.*

1 *Thornycroft*: **Amazon** (Jan. 27th, 1926). Displacement :1350 tons. Dimensions : 311¾ (*pp.*) × 31½ × 9⅙ feet (*mean* draught).
1 *Yarrow*: **Ambuscade** (Jan. 15th, 1926). Displacement : 1170 tons. Dimensions : 307 (*pp.*)× 31 × 8¼ feet (*mean* draught).



AMBUSCADE. 1935, *R. Perkins, Esq.*

Guns : **4**—4·7 inch, **2**—2 pdr. pom-poms, 5 M.G. Tubes : **6**—21 inch in triple mounts. Machinery : Brown-Curtis turbines (all-geared type) H.P. and cruising ; Parsons L.P. Boilers : Admiralty 3-drum type, by Builders. Designed S.H.P. 39,500 (*Amazon*), 33,000 (*Ambuscade*) = 37 kts. (made on trials). Superheated steam. Oil : *Amazon*, 433 tons ; *Ambuscade*, 385 tons. Complement : 138.

*Notes.*—Built under 1924–25 Estimates. All-steel bridges, higher freeboard and improved cabin accommodation are features of this and later types, which possess a larger radius of action than preceding classes. If necessary, induced ventilation can be supplied throughout the vessel, with a view to possible service in Tropics. *Ambuscade* laid down December 8th, 1924 ; *Amazon* in January, 1925. Both completed Sept., 1926. Cost : *Amazon*, £319,455 ; *Ambuscade*, £326,616.

## 14 "Admiralty Modified W."

Am
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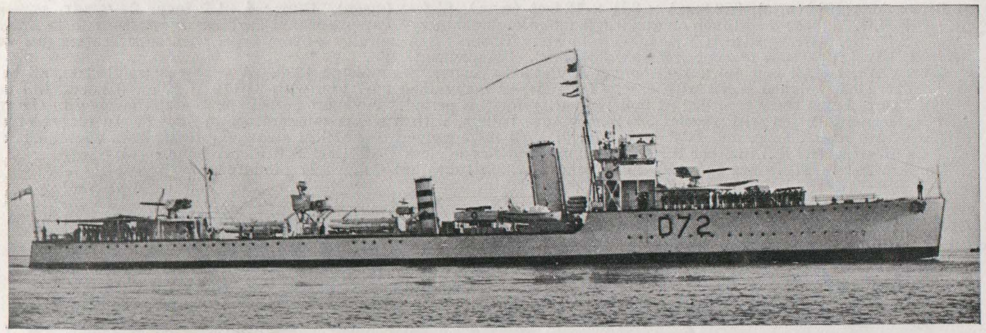


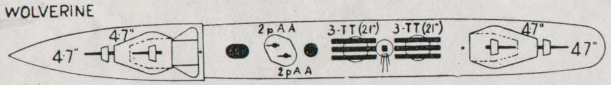
VETERAN. 1930 *Photo, Abrahams, Devonport.*

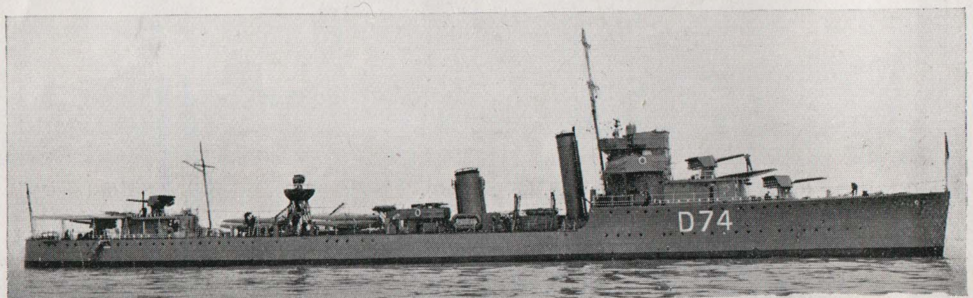
7 BOATS, APPEARANCE AS ABOVE PHOTO :—

1 *Clydebank*: **Veteran.** 2 *Swan-Hunter*: **Whitshed, Wild Swan.**
4 *White*: **Witherington, Wivern, Wolverine, Worcester.**† (Completed by †Portsmouth D.Y.)

*To distinguish.*—Proportions of funnels reversed compared with other V's and W's. These boats have *thick* fore funnel and *thin* after funnel. *No* AA. guns abaft 2nd funnel. 2 pdr. pom-poms in echelon between funnels. White boats have plain S.L. tower without compass platform on fore side. *Witherington* and *Wivern*, only, have oval after funnel, built in sideways. *Wild Swan* has tall mainmast.

WOLVERINE





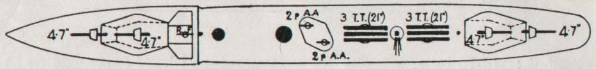
WANDERER. 1937, "*Fighting Ships.*"

7 BOATS, APPEARANCE AS ABOVE PHOTO :—

1 *Beardmore*: **Vansittart.** 2 *Clydebank*: **Venomous** (ex *Venom*), **Verity.** 1 *Denny*: **Volunteer.**
1 *Fairfield*: **Wanderer.** 1 *Swan Hunter*: **Whitehall.** (Completed by Chatham D.Y.)
1 *Yarrow*: **Wren.** (Completed by Pembroke D.Y.)

*To distinguish.*—Difficult to distinguish from six tube V's. The short mainmast separates them from Admiralty W's. Only distinctive feature is the **2**—2 pdr. AA. guns abaft after funnel, in echelon. Only *Venomous* and *Verity* have compass platform forward of S.L. tower. *Wren* has no caps to funnels.

WANDERER.



### General Notes for both Types.

| | Begun. | Launch. | Comp. |
|---|---|---|---|
| *Veteran* .. .. | 30/8/18 | 26/4/19 | 13/11/19 |
| *Whitshed* .. .. | 6/18 | 31/1/19 | 11/7/19 |
| *Wild Swan* .. | 7/18 | 17/5/19 | 14/11/19 |
| *Witherington* .. | 27/9/18 | 16/4/19 | 10/10/19 |
| *Wivern* .. .. | 19/8/18 | 16/4/19 | 23/12/19 |
| *Wolverine* .. .. | 8/10/18 | 17/7/19 | 27/7/20 |
| *Worcester* .. .. | 20/12/18 | 24/10/19 | 20/9/22 |

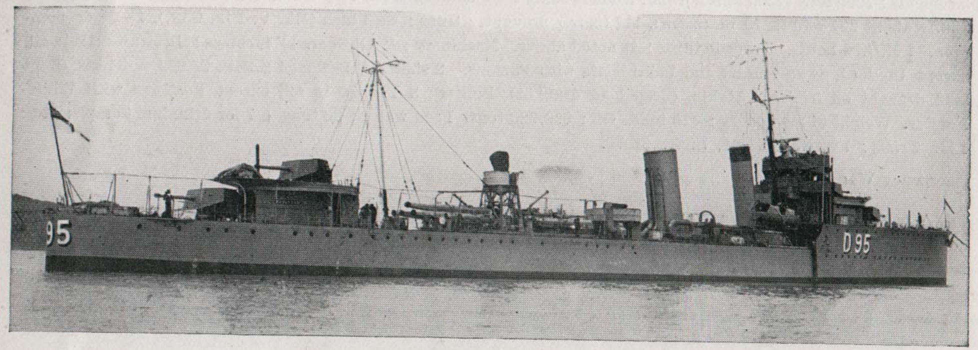
Displacement : 1120 tons *average* (1500 *full load*). Dimensions : 300 (*p.p.*), 312 (*o.a.*) × 29½ × 10⅚ feet (*mean*) *draught.* Guns : **4**—4·7 inch (DIR. CON.), **2**—2 pdr. pom-poms, **1** M.G., **4** Lewis. Tubes : **6**—21 inch, in two triple mountings. Machinery : Turbines (all-geared type)—all Brown-Curtis, but *Whitehall*, Parsons. Designed S.H.P. 27,000 = 34 kts.* 2 screws. Boilers : Yarrow, except *White* boats with White-Forster. Oil : 374-353/324-318 tons ; *Whitehall*, 368/318. Complement, 134.

*Light load draught on *trials* ; on deep load 31 kts. with same S.H.P.

*Notes.*—Begun under War Emergency Programme, 1918, cost of completion of all comes under post-war Estimates. Differ from preceding V's in armament.

| | Begun. | Launch. | Comp. |
|---|---|---|---|
| *Vansittart* .. .. | 1/7/18 | 17/4/19 | 5/11/19 |
| *Venomous* .. .. | 31/5/18 | 21/12/18 | 6/19 |
| *Verity* .. .. | 17/5/18 | 19/3/19 | 17/9/19 |
| *Volunteer* .. .. | 16/4/18 | 17/4/19 | 7/11/19 |
| *Wanderer* .. .. | 1918 | 1/5/19 | 18/9/19 |
| *Whitehall* .. .. | 6/18 | 11/9/19 | 9/7/24 |
| *Wren* .. .. | 6/18 | 11/11/19 | 2/23 |

## 2 Thornycroft "W"



WOOLSTON. 1931 *Photo, R. Perkins, Esq.*

2 *Thornycroft:* **Wolsey, Woolston.** 1120 tons. Dimensions: 300 (*p.p.*), 312 (*o.a.*) × 30ft. 7in. × 10¾ feet (*mean* draught). Guns: **4**—4 inch (Mk. V. DIR. CON.), **1**—2 pdr. pom-pom, **1** M.G., **4** Lewis. Tubes: **6**—21 inch in two triple deck mountings. Machinery: Brown-Curtis turbines (all-geared type). 2 shafts. Designed S.H.P. 30,000 = 35 kts.* Thornycroft boilers Oil: 374/322 tons. Complement, 134.

* Light load draught on *trials*; on deep load at 1512 tons, 31 kts. with same S.H.P.

*General Notes.*—Emergency War Programme. Differ from other Admiralty W's in H.P., speed, and a few other particulars. No War Losses. Plans as "6-tube V's" on next page.

*To distinguish.*—Big flat-sided after funnel. Fore funnel does not look so prominently raised, owing to extra height of after funnel. Hull stands high out of water.

| | *Begun.* | *Launch.* | *Comp.* | *Trials.* |
|---|---|---|---|---|
| *Wolsey* | 3/17 | 16/3/18 | 14/5/18 | 36·64 |
| *Woolston* | 4/17 | 27/1/18 | 28/6/18 | 37·11 |

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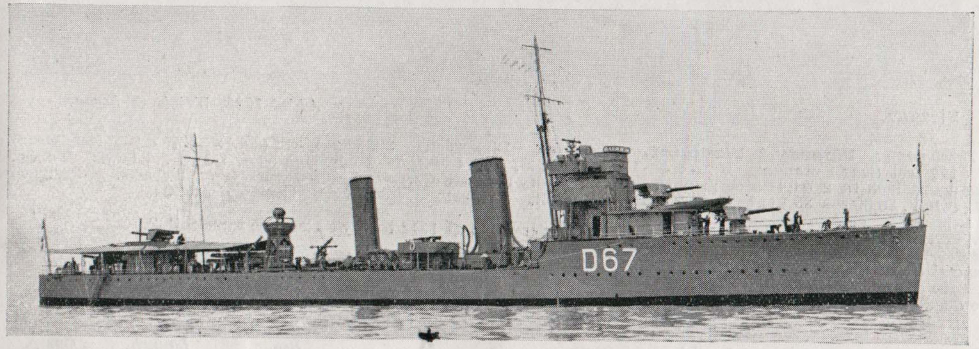
## 2 Thornycroft "Modified W" Type.



WISHART. 1937, "*Fighting Ships.*"

2 *Thornycroft:* **Wishart, Witch.** 1140 tons (1550 *full load*). Dimensions: 300 (*p.p.*), 312 (*o.a.*) × 30 ft. 7 in. × 10 feet. 11 ins. Guns: **4**—4·7 inch (DIR. CON.), **2**—2 pdr. pom-poms, **1** M.G., **4** Lewis. Torpedo tubes: **6**—21 inch in two triples. Machinery: Brown-Curtis turbines (all-geared type). 2 shafts. Boilers: 3 Thornycroft. Designed S.H.P. 30,000 = 35 kts. (light load draught on *trials*) and 32 kts. (deep load). Oil fuel: 374/322 tons. Complement, 134.

*General Notes.*—Begun under Emergency War Programme. Differ from Admiralty "Modified W's" in dimensions, H.P., speed and a few other details.

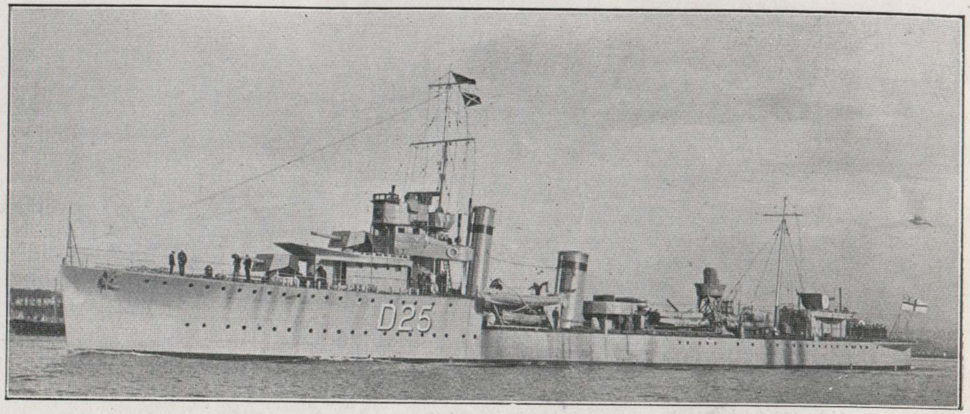
*To distinguish.*—Big, flat-sided fore funnel, set well aft of bridges, both funnels nearly equal in height. Hull stands high out of water.

| | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|
| *Wishart* | 6/18 | 18/7/19 | 6/20 |
| *Witch* | 6/18 | 11/11/19 | 3/24† |

†*Witch* completed by Devonport D.Y.

(Plans generally as for *Wolverine* on preceding page.)

## 17 Admiralty "W"



WARWICK. 1924 *Photo, Abrahams*

1 29 5
6 19 5 4
9 20 2
10 24 5 4
11 27 4 4
14 5 7 4

2 *Beardmore:* **Wakeful, Watchman.***
2 *Denny:* **Walker,* Westcott.**
2 *Doxford:* **Walpole, Whitley.**
2 *Fairfield:* **Walrus, Wolfhound.**
2 *Hawthorn Leslie:* **Warwick,* Wessex.**
1 *Palmer:* **Wryneck.**
2 *Scott:* **Westminster, Windsor.**
2 *Swan Hunter:* **Whirlwind,* Wrestler.**
2 *White:* **Winchester, Winchelsea.**

*Note.*—*Vanquisher* and *Venturous*, though officially included in Admiralty "V" class on following page, are actually almost indistinguishable from Admiralty "W" type.

* Fitted as Mine Layers during War. Still have chutes at stern.

Displacement: 1100 tons. Dimensions: 300 (*p.p.*), 312 (*o.a.*) × 29½ × 10 ft. 10 ins. (*mean*), 11¼ (*max.*) draught. Guns: **4**—4 inch (Mk. V. DIR. CON.). **2**—2 pdr. pom-poms, **1** M.G., **4** Lewis. Torpedo tubes: **6**—21 inch in two triple deck mountings. Machinery: "All-Geared" turbines, Brown-Curtis in all except *Wryneck*, with Parsons. 2 shafts. Designed S.H.P.: 27,000 = 34 kts.* Boilers: 3 Yarrow, except White boats with White-Forster. Oil: *about* 368/322 tons. Complement: 134.

* Light load draught on *trials*; on deep load at 1480 tons, 31 kts. with same S.H.P.

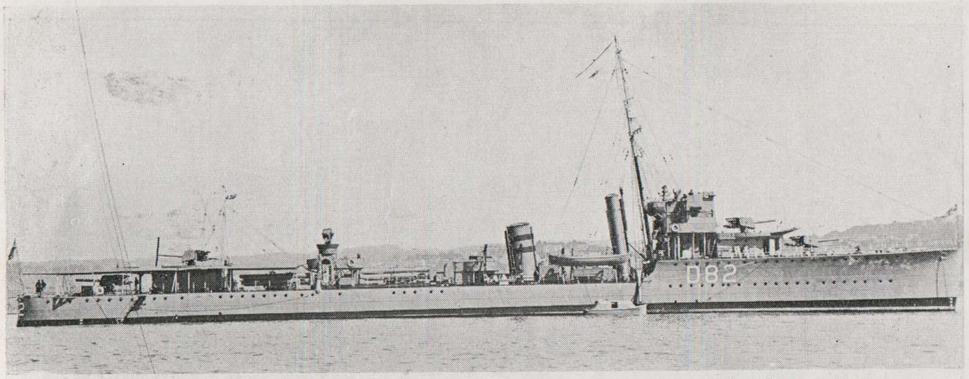
*General Notes.*—All Emergency War Programme. No War losses. *Waterhen* and *Voyager* transferred to R.A.N.

*To distinguish:* From V's with 6 tubes: by taller mainmast.

| | *Begun* | *Launch.* | *Comp.* |
|---|---|---|---|
| *Wakeful* | 17/1/17 | 6/10/17 | 11/17 |
| *Watchman* | 17/1/17 | 2/12/17 | 1/18 |
| *Walker* | 26/3/17 | 29/11/17 | 12/2/18 |
| *Westcott* | 30/3/17 | 14/2/18 | 12/4/18 |
| *Walpole* | 5/17 | 12/2/18 | 7/8/18 |
| *Whitley* | 6/17 | 13/4/18 | 10/18 |
| *Walrus* | 2/17 | 27/12/17 | 8/3/18 |
| *Wolfhound* | 4/17 | 14/3/18 | 27/4/18 |
| *Warwick* | 10/3/17 | 28/12/17 | 18/3/18 |
| *Wessex* | 23/5/17 | 12/3/18 | 11/5/18 |
| *Wryneck* | 7/17 | 13/5/18 | 11/18 |
| *Westminster* | 4/17 | 24/2/18 | 18/4/18 |
| *Windsor* | 4/17 | 21/6/18 | 28/8/18 |
| *Whirlwind* | 5/17 | 15/12/17 | 3/18 |
| *Wrestler* | 7/17 | 25/2/18 | 15/5/18 |
| *Winchester* | 12/6/17 | 1/2/18 | 29/4/18 |
| *Winchelsea* | 24/5/17 | 15/12/17 | 15/3/18 |

(Plans as for "6 tube V's" *Vanessa*, *Vanity*, &c., on following page.)

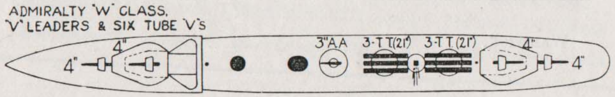
## 18 Admiralty "V."



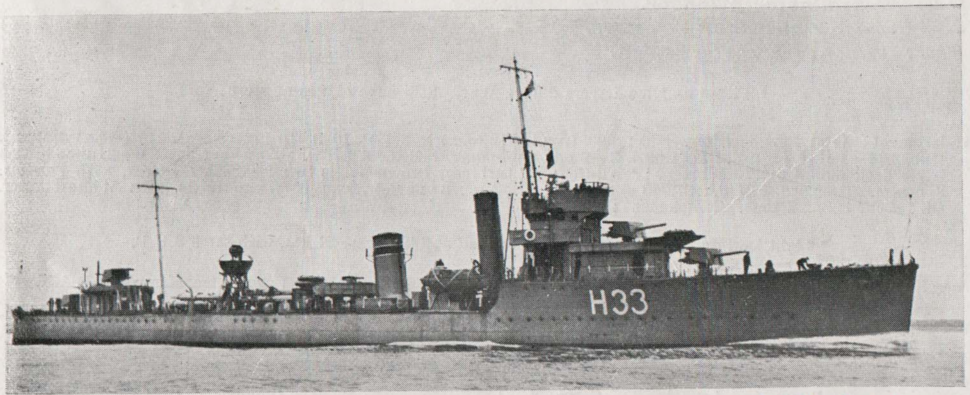
VALOROUS. 1935 *Photo, R. Perkins, Esq.*

10 V Tenna
12 V Hopb
10 al bog Zon
2 TK Ceb.

2 *Beardmore :* **Vanessa, Vanity.**
1 *Doxford :* **Vega.**
1 *Fairfield :* **Venetia.**
1 *Hawthorn Leslie :* **Verdun.**
2 *Stephen :* **Vidette, Vesper.**
1 *Swan Hunter :* **Vimiera.**
2 *Yarrow :* **Vivien, Vivacious.**
1 *Denny :* **Valorous.**
1 *Clydebank :* **Vanquisher.**
1 *Cammell-Laird :* **Valentine.**

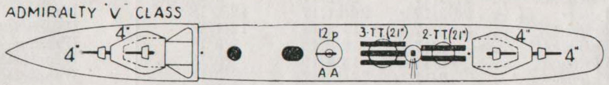


All above boats have **6**—21 inch tubes in 2 triple deck mountings (1920 alteration).
*To distinguish.*—Identical now with "Admiralty W." class, but have *short* mainmasts (except *Vanquisher*, and *Vega*, which have *high* mainmasts like "W" class, from which they are practically indistinguishable in appearance).



VANOC. 1936, *Wright & Logan.*

1 *Clydebank :* **Vanoc.**
1 *Beardmore :* **Vimy** (*ex-Vancouver*).
1 *Doxford :* **Velox.**
1 *Hawthorn Leslie :* **Versatile.**
1 *White :* **Vortigern.**



All above have *five* 21 inch tubes in one triple (forward) and one double (after) deck mountings (1920 alteration). All fitted as Mine Layers during War, some retain chutes at stern.
*To distinguish.*—The mixed T.T. mountings are special to these boats, and render them distinctive.

## General Details of all Admiralty "V" type.

Displacements : 1090 tons (1300 tons normal, Leaders being 1325 *normal*). (1480 *deep load*). Dimensions : 300 (*p.p.*), 312 (*o.a.*) × about 29½ × 10 ft. 10 in. (*mean*), 11¾ (*max.*) draught. Guns : **4**—4 inch (Mk. V. DIR. CON.), **1**—2 pdr. pom-pom. **1** M.G., **4** Lewis. Torpedo tubes : As noted above. Machinery : "All-Geared" turbines : Brown-Curtis in all, except Doxford, Swan-Hunter and Laird boats with Parsons. 2 shafts. Designed S.H.P. 27,000 = 34 kts. (light load draught on *trials*) = 31 kts. (deep load draught). Boilers : 3 Yarrow in all, except *Vortigern* with White-Forster. Weight of machinery : 425 tons. Oil : 360/320 tons. Feed water : 20 tons + 7 for drinking. Complement : 134. *Trials : Vivacious* 33·01, *Vivien* 36·79.

All Emergency War Programme.

*Special Note.—Valorous, Valentine,* are fitted as Flotilla Leaders, having been originally designed and classed as such. Internal arrangements of these differ from rest of class. Minelayers : *Vimy, Velox, Versatile, Vortigern,* retain mine-laying gear.

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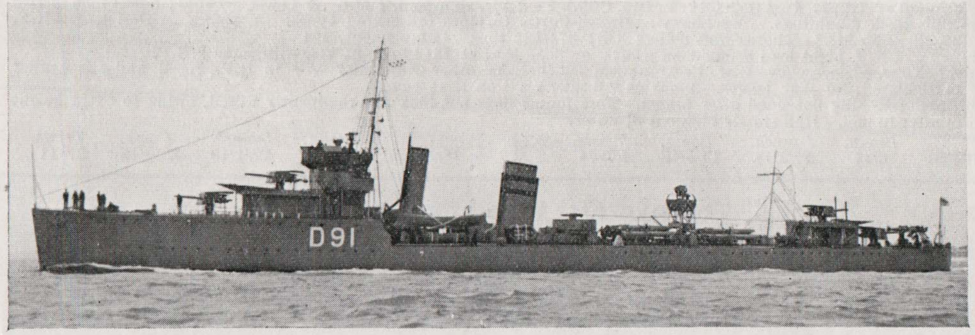
## 2 Thornycroft "V."



VICEROY. *Added* 1935, *Wright & Logan.*

2 *Thornycroft :* **Viceroy,† Viscount.** 1120 tons. Dimensions : 300 (*p.p.*), 312 (*o.a.*) × 30′ 7″ × 10¾ feet (*mean*) 11¾ feet (*max.*) draught. Guns : **4**—4 inch (Mk. V. DIR. CON.), **1**—2 pdr. pom-pom, **1** M.G., **4** Lewis. Tubes : **6**—21 inch in 2 triple deck mountings. Machinery : Brown-Curtis (all-geared) turbines. 2 shafts. Designed S.H.P. 30,000 = 35 kts.* Boilers : 3 Thornycroft. Oil fuel : 374/322 tons. Complement, 134.

* Light load draught on *trials* : on deep load at 1512 tons, 31 kts. with same S.H.P.

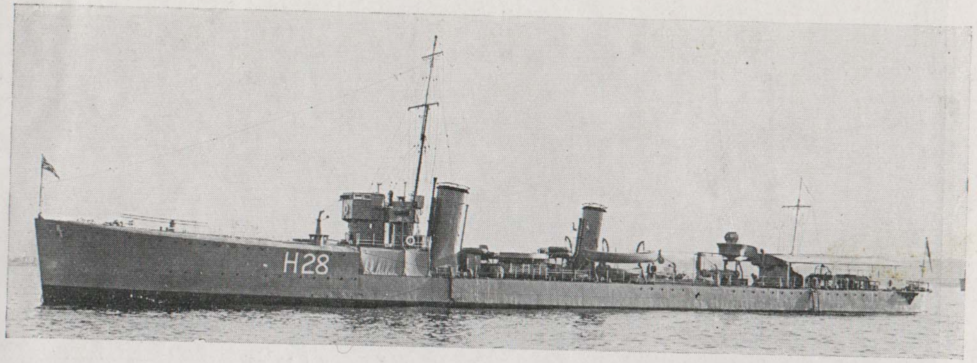
*General Notes.*—Emergency War Programme boats. Differ from Admiralty V design in dimensions, H.P. and speed. No War Losses.
*To distinguish.*—As Notes to *Wolsey* and *Woolston*, except in height of mainmast, which is *short*, in these two boats.

(Plans as "6 tube V's".) † H.S. Sweeps.

| | *Begun.* | *Launch.* | *Comp.* | | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|---|---|---|---|
| *Vimy* .. | 15/3/17 | 28/12/17 | 9/3/18 | *Verdun* .. | 13/1/17 | 21/8/17 | 3/11/17 |
| *Vanessa* .. | 16/5/17 | 16/3/18 | 27/4/18 | *Versatile* . | 31/1/17 | 31/10/17 | 11/2/18 |
| *Vanity* .. | 28/7/17 | 3/5/18 | 21/6/18 | *Vesper* .. | 27/12/16 | 15/12/17 | 20/2/18 |
| *Vanoc* .. | 20/9/16 | 14/6/17 | 8/17 | *Vidette* .. | 1/2/17 | 28/2/18 | 27/4/18 |
| *Vanquisher* .. | 27/9/16 | 18/8/17 | 10/17 | *Vimiera* .. | 10/16 | 22/6/17 | 9/17 |
| *Vega* .. .. | 1916 | 1/9/17 | 12/17 | *Vortigern* .. | 17/1/16 | 15/10/17 | 25/1/18 |
| *Velox* .. .. | 1/17 | 17/11/17 | 1/4/18 | *Vivacious* .. | 7/16 | 3/11/17 | 12/17 |
| *Valentine* .. | 7/8/16 | 24/3/17 | 27/6/17 | *Vivien* .. | 7/16 | 16/2/18 | 28/5/18 |
| *Valorous* .. | 25/5/16 | 8/5/17 | 21/8/17 | *Viscount* .. | 12/16 | 29/12/17 | 3/18 |
| *Venetia* .. | 1917 | 29/10/17 | 19/12/17 | *Viceroy* .. | 12/16 | 17/11/17 | 1/18 |

*War Losses.—Vehement* (Denny). *Verulam* (Hawthorn Leslie) and *Vittoria* (Swan Hunter) lost 1919 in Baltic operations. *Valkyrie* mined during war and had to be almost entirely rebuilt at Chatham D Y. *Valhalla* scrapped 1932; *Valkyrie, Vectis, Venturous, Violent,* 1936; *Vendetta* and *Vampire* transferred to R.A.N.

## 10 Admiralty "S."



STURDY, as Tender. (Armament since replaced.) 1934 *Photo, R. Perkins, Esq.*

2 *Clydebank:* **Scimitar, Scout.**

1 *Doxford:* **Shikari.***

3 *Hawthorn Leslie:* **Thanet, Thracian,† Tenedos.**

2 *Scott:* **Stronghold, Sturdy.**

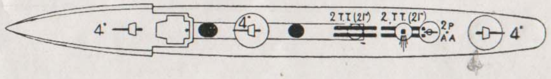
2 *Stephen:* **Saladin, Sardonyx.**

*Completed by Chatham D.Y. 1924 and †by Sheerness D.Y. 1922. Rest completed 1918-19.

905 tons. Dimensions: 265 (*p.p.*), 276 (*o.a.*) × 26¾ × 10⅚ feet (*mean*) draught. Guns: **3**—4 inch (Mk. IV DIR. CON. with 30° elevation), **1**—2 pdr. pom-pom, **1** M.G., **4** Lewis. Tubes: **4**—21 inch in pairs. Machinery: Brown-Curtis turbines (all-geared type). Designed S.H.P.: 27,000 = 36 kts. 2 shafts. 3 Yarrow boilers. Oil: 301/254 tons. Complement: 98.

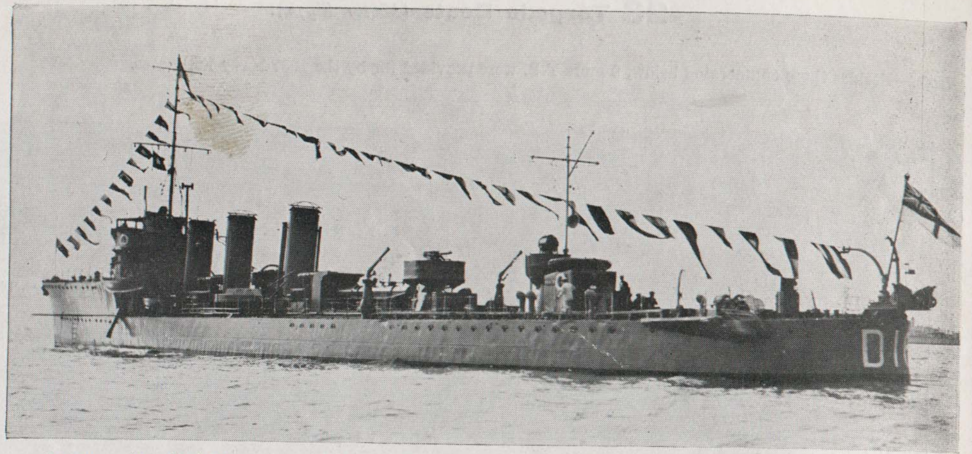
*General Notes.*—Emergency War Programme boats, but cost of completion of about 45 boats included in post-war Estimates. Design derived from "Admiralty Modified R" boats. Reported to be not quite so successful as the Admiralty R's. They are wet with sea on beam or bow; they ride well in head seas, but throw spray over bridges. No War losses. *Shikari* has had W/T. deckhouse erected in place of gun between funnels and carries a much reduced armament.

*Scrappings, etc.*—*Speedy* and *Tobago* lost 1922. *Saturn, Sycamore* (both Stephen) cancelled. *Stalwart, Success, Swordsman, Tattoo, Tasmania,* presented to Royal Australian Navy, 1918 and since scrapped. *Stonehenge* wrecked 1920. *Sikh* sold 1925, *Spear* 1926, *Tactician, Seabear, Simoon, Shark, Sparrowhawk, Splendid, Tilbury* sold 1930. *Trinidad, Tintagel, Seawolf, Scythe, Tara, Truant* sold 1931. *Sepoy, Sterling, Serapis, Somme* sold 1932. *Sesame, Sirdar, Stormcloud, Steadfast, Strenuous, Tribune, Seraph,* sold 1933. *Seafire, Senator, Serene,* sold 1935. *Scotsman, Shamrock, Spindrift, Turbulent, Swallow, Sportive, Trojan, Trusty, Searcher,* sold 1936–37. *Sabre* demilitarised 1936 for use as target ship, so is listed on a later page.



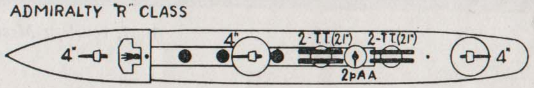
4 26 1 42 Δ Μαλαισία
6 5 4 42 β Κολόμβο
7 2 3 42 Δ Ιάβα
8 30 10 40 Ναυαγ. [illegible]

## 1 Admiralty R."



SKATE. (Pendant No. is now H 39). 1935, *"Fighting Ships."*

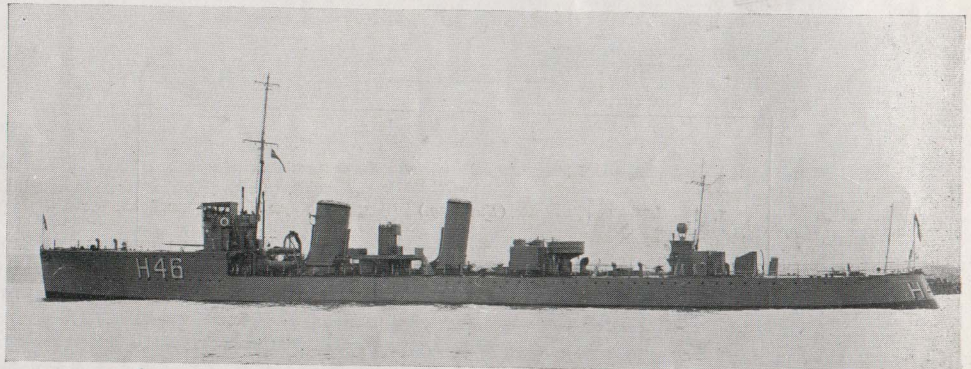
1 *Clydebank:* **Skate.**



Displacement: 900 tons. Length (*p.p.*), 265 feet (*o.a.* 276 feet). Beam, 26¾ feet. *Mean* draught, 10⅝ feet. *Max.* draught, 15 feet. Guns: **3**—4 inch (DIR. CON.), **1**—2 pdr. pom-pom, **1** M.G., **4** Lewis. Torpedo tubes: **4**—21 inch in pairs. Machinery: Brown-Curtis A.G. turbines. Designed S.H.P. 27,000 = 36 kts. 2 shafts. Boilers: 3 Modified Yarrow. Oil fuel: 301–285 tons. Complement, 98.

*Appearance Notes.*—*Skate* has at present only 2—4 inch, 2 T.T. forward, and minelaying chutes aft.

## 1 Yarrow "R." ("Later M.")



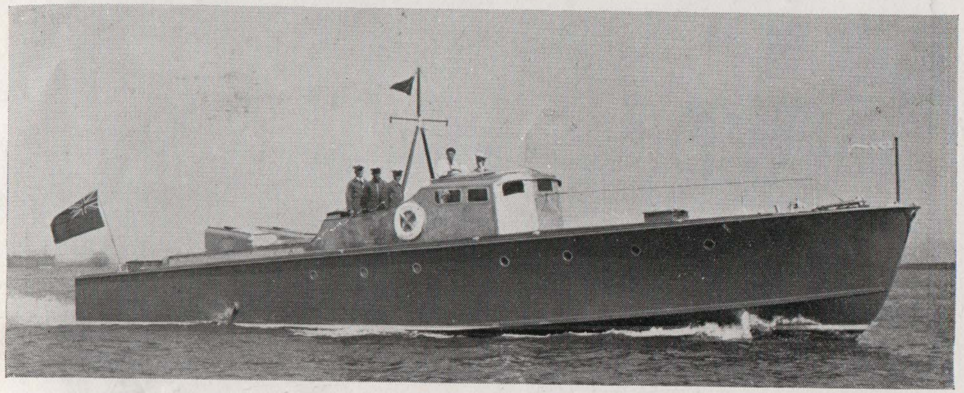
1936, *"Fighting Ships."*

1 *Yarrow:* **Tyrant.** Displacement: 760 tons. Dimensions: 269¼ (*p.p.*), 271½ (*o.a.*) × 25¾ × 9 ft. 7 in. (*mean*), 10½ (*max.*) draught. Guns: **3**—4 inch (DIR. CON.), **1**—2 pdr. pom-pom, **1** M.G., **4** Lewis. Torpedo tubes: **4**—21 inch, in pairs. Machinery: Brown-Curtis turbines. 2 shafts. Designed S.H.P. 23,000 = 36 kts. Boilers: 3 Yarrow. Oil fuel: 256-228/215-202 tons. Complement, 98.

*Note.*—Laid down March, 1916, launched May 19, 1917, completed July, 1917. Demilitarised for harbour service.

## 23 Torpedo Boats (*Motor Type*).

*Note.*—Besides those enumerated below, 9 more T.B. were provided for by the 1937 Navy Estimates.



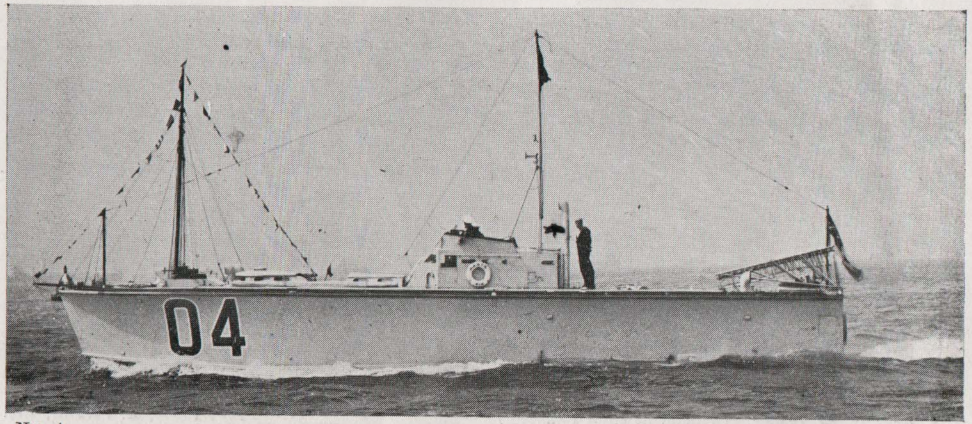
1937, *courtesy Messrs. Vosper Ltd.* (*Builders*).

1 *Vosper* type: No. 102. Delivered 1937.

Length: 68 feet. Complement: 10. Armament: 1—21 inch bow tube, 1—21 inch torpedo in trough aft, 2—20 mm. (twin ring mount, all round firing positions). Machinery: 3 Isotta-Fraschini engines. Total B.H.P.: 3,000 = 47·8 kts. in light condition, 43·7 kts. with full equipment.

(*Building.*)

1 *White* type: No. 101: Ordered Dec. 7, 1936, under Estimates of that year. No particulars, but is believed to be armed with 21 inch torpedoes and guns in semi-enclosed mountings. 3 Isotta-Fraschini engines. To cost £35,320.



No. 4. 1937, "*Fighting Ships.*"

12 *British Power Boat* type: Nos. 1 to 12 (1936–37). 15 tons. Complement: 7. Dimensions: 60 × 13 × 2½ feet. Guns: 8 Lewis. Troughs for 2—18 inch torpedoes. Each propelled by three motors, combined H.P.: 1,500 ≐ 35 kts. Radius of action: 500 miles at 20 kts. First six built under 1935 Estimates, second six under 1936. First six completed June—Dec., 1936. Remaining six during 1937–38. Cost over £22,000 apiece.

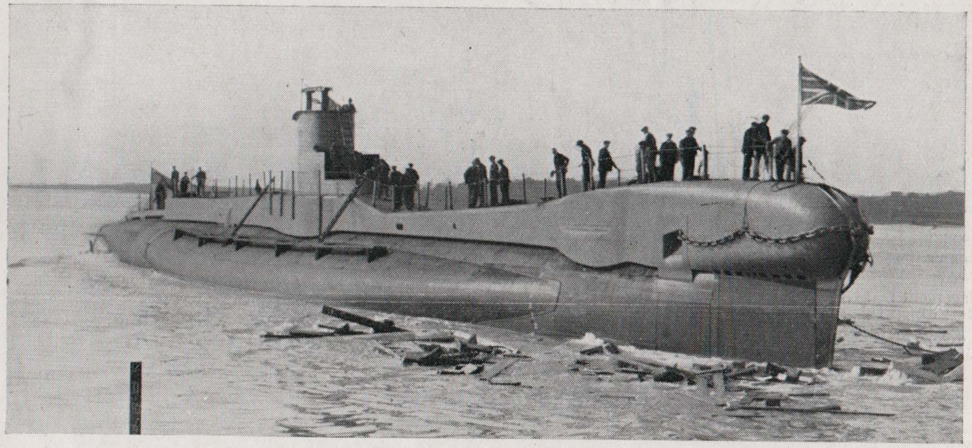
## Submarine Chaser

(*Trials in progress.*)

M.A.S.B. No. 1. (1937.) Building by British Power Boat Co., Southampton.

Вел. С[illegible] нов 2 пл из 6 шт
типа А

## 12 Triton class



TRITON launch. 1937, *courtesy Messrs. Vickers-Armstrongs, Ltd.*

5 *Vickers-Armstrongs :* **Triton, Triumph, Thistle, Triad, Truant.**
3 *Cammell Laird :* **Thetis, Trident, Taku.**
3 *Scotts :* **Tribune, Tarpon, Tuna.**

*Orders not assigned :*
**Tigris.**

$\frac{15,2}{9}$ кн 10-533

Displacement : *Triton* and *Thetis*, 1,095/1,579 tons ; others, 1,090/1,575 tons. Dimensions : 265 × 26½ × 12 feet. Guns : **1**—4 inch. Tubes : **6**—21 inch.

*Notes.*—Officially described as " Patrol type " submarines, for general service. A return to smaller dimensions is the outstanding feature. Cost of *Triton*, £347,900.

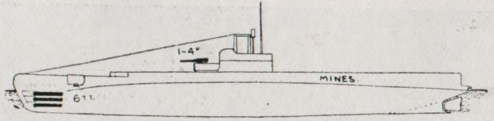
| *Est.* | *Name* | *Begun* | *Launch* | *Completed* |
|---|---|---|---|---|
| 1935 | *Triton* | 28/8/36 | 5/10/37 | *To be* 1938 |
| 1936 | *Thetis* | 21/12/36 | | |
| | *Tribune* | 3/3/37 | | |
| | *Trident* | 12/1/37 | | |
| | *Triumph* | 19/3/37 | 16/2/38 | |
| 1937 | *Taku* | 18/11/37 | | |
| | *Tarpon* | 5/10/37 | | |
| | *Thistle* | 7/12/37 | | |
| | *Tigris* | | | |
| | *Triad* | | | |
| | *Truant* | | | |
| | *Tuna* | | | |

ПЛ типа А, Т, S, U

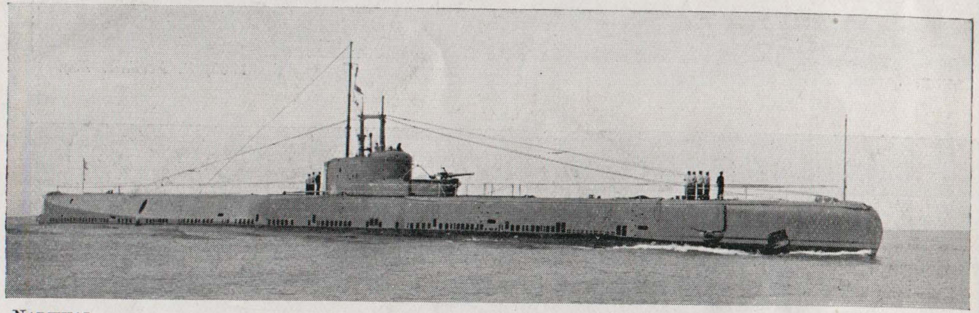
А - 15 шт (45-47) $\frac{1120}{1620}$ т $\frac{18,5}{8}$ кн 10-533 {6-нос 4 корм 1-102 1-20 авт 3 пул.

Т - 25 (Triton)
S - ок 40 (Sharks)
U - ок 30 (Unity)

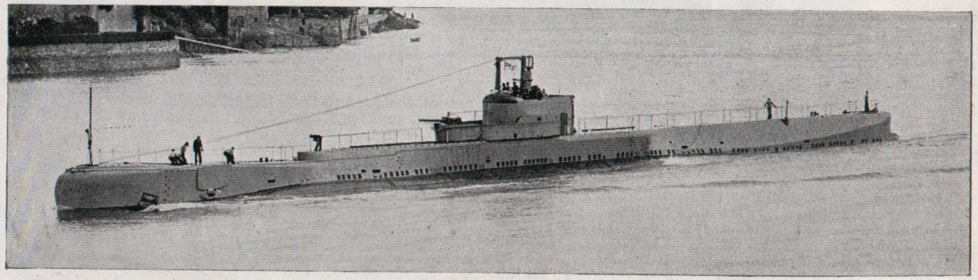
## 6 Porpoise class (Minelayers.)



PORPOISE *class*



NARWHAL. 1936, *Wright & Logan.*



PORPOISE. (Only one of class with this type of forecastle). 1935, *R. Perkins, Esq.*

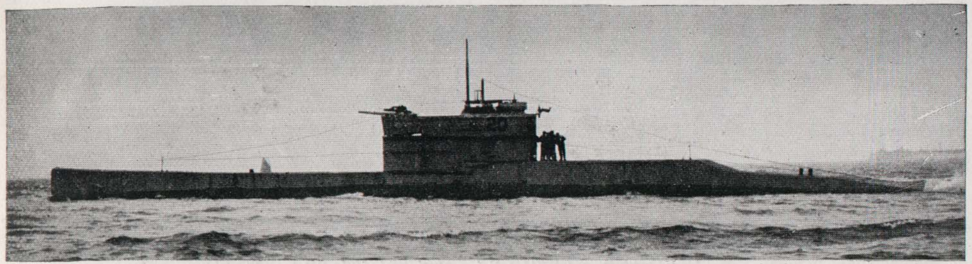
3 *Vickers-Armstrongs :* **Porpoise, Narwhal, Rorqual.**
2 *Chatham Dockyard :* **Grampus, Seal.**
1 *Scotts :* **Cachalot.**

Displacement : 1,520/2,140 tons, except *Porpoise*, 1,500/2,060 tons. Complement, 55.
Dimensions : 271½ × 25½ × 15 feet (*Porpoise*, 267 × 29⅚ × 13¾ feet) (*mean*).
Guns : **1**—4 inch, **2** M.G. Tubes : **6**—21 inch (bow).
Diesels of B.H.P. 3,300 = 16 kts. surface. (*Porpoise*, 15 kts.).
Electric motors, H.P. 1,630 = 8·75 kts. submerged.
Fuel : 136 tons.

*Notes.*—Very successful ships. Cost : *Grampus*, £408,112 ; *Narwhal*, £348,365 ; *Rorqual*, £350,639 ; *Cachalot*, £374,057.

## (Oceangoing Types.)

## 4 L Class. (Second series.)



1919 *Photo, Cribb, Southsea.*

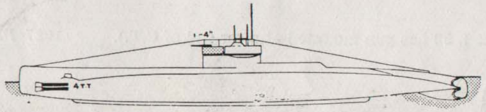
4 *Vickers :* ***~~L 21~~, L 23*, L 26*, L 27*,*** (1918–19).

* Completed by Dockyards.

Displacement : 760/1,080 tons. Dimensions : 229 (*p.p.*), 238½ (*o.a.*) × 23½ × 13¾ feet. Other details as in 3rd series in preceding page, but armament comprises **1**—4 inch and **1** M.G., and **4**—21 inch Tubes.

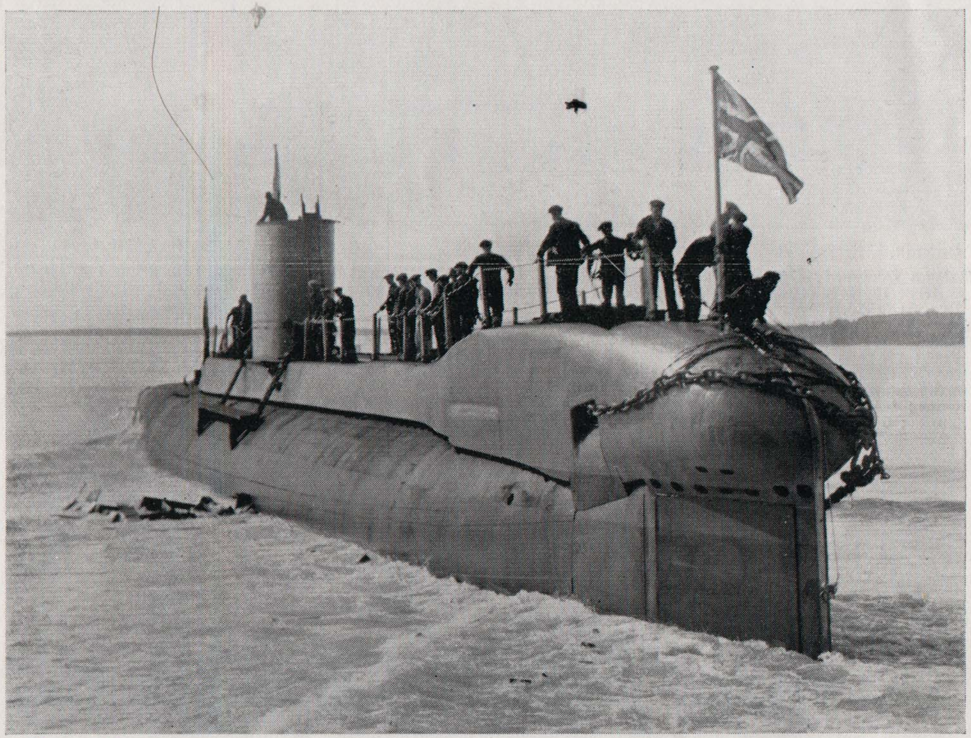
*Notes.*—All begun under Emergency War Programme, 1916. Equipment of these boats is extensive, e.g., refrigerating machinery for storage batteries, gyro compass with repeaters. 3 periscopes (one for night work), directional hydrophones, &c. Breastwork revolves with gun. *L* 10 War loss. *L* 24 rammed off Portland, January, 1924. *L* 9 foundered in a typhoon at Hong Kong, August, 1923, but was salved the following month ; since sold.

Others scrapped—*L*1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 22, 25, 33. Missing numbers never completed.



## (Coastal Types.)

## 3 Unity Class.



Undine launch. 1937, *courtesy Messrs. Vickers-Armstrongs, Ltd.*

1.40

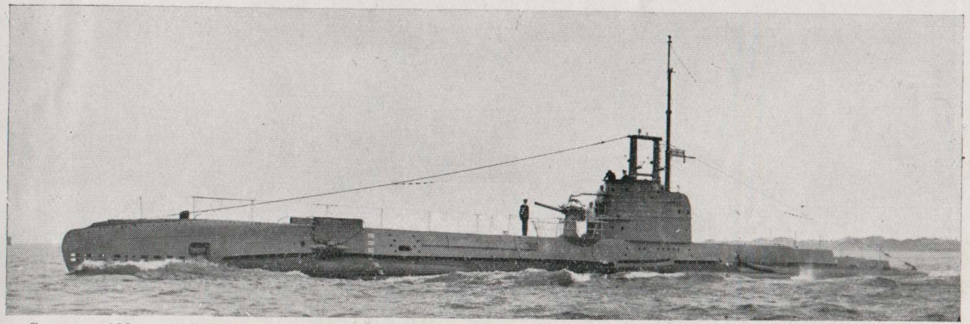
3 *Vickers-Armstrongs :* ***Undine, Unity, Ursula.***

Displacement : 540/741 tons. No other particulars released. 13/9 kn 4-533

| *Programme* | *Name* | *Begun* | *Launched* | *Completed* |
|---|---|---|---|---|
| 1936 | *Undine*<br>*Unity*<br>*Ursula* | 19/2/37 | 5/10/37<br>16/2/38<br>16/2/38 | |

## Coastal Types—*continued.*

### 8 Shark class (Improved Swordfish class).

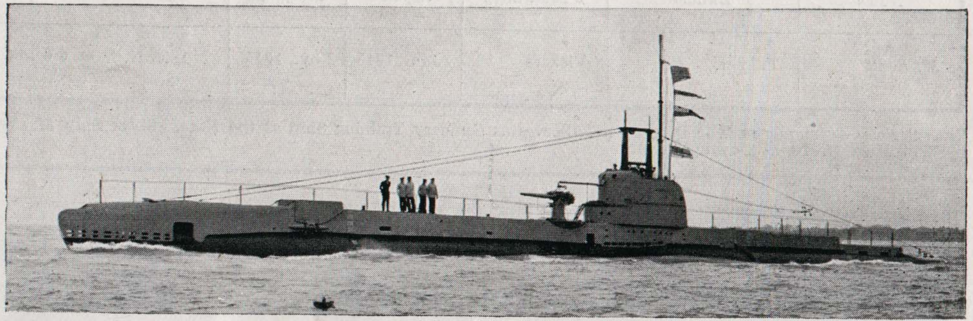


SUNFISH (Observe C.T.). 1937, *Wright & Logan.*

4 *Chatham Dockyard :* **Shark, Snapper, Sunfish, Sterlet.**
3 *Cammell Laird :* **Sealion, Salmon, Spearfish.**
1 *Scotts :* **Seawolf.**
Displacement : 670/960 tons. Complement : 40.
Dimensions : 193 (*pp.*), 202½ (*w.l.*) × 24 × 10½ feet (*mean*).
Guns : **1**—3 inch, **1** M.G. Tubes : **6**—21 inch (bow).
H.P. : 1,550/1,300 = 13·75/10 kts, except *Sunfish, Spearfish, Sterlet*, 1,900/1,300 = 15/10 kts. Fuel : 40 tons.

*Notes.*—Reputed to be very handy craft, capable of making a " crash-dive " in 30 seconds. Cost ranges between £230,000 and £245,000. Annual maintenance (direct expenditure only), £23,200.

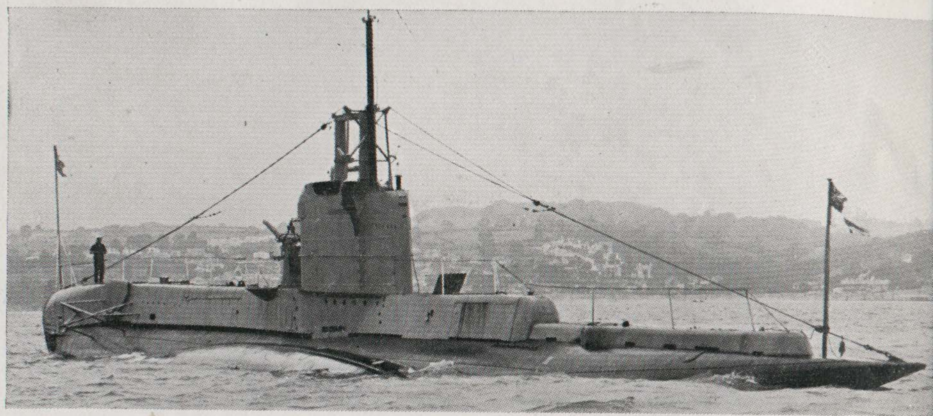
*Appearance Notes.*—For differences, see silhouettes. All have or will be fitted with a 3 inch gun on deck before c.t. *Seawolf* and later vessels have slightly lower freeboard at bow.



SEAWOLF. 1936, *Wright & Logan.*

| *Est.* | *Name* | *Begun* | *Launch* | *Completed* |
|---|---|---|---|---|
| 1929 | *Swordfish* | 12/30 | 10/11/31 | 16/9/32 |
| | *Sturgeon* | 3/1/31 | 8/1/32 | 15/12/32 |
| 1930 | *Starfish* | 26/9/31 | 14/3/33 | 27/10/33 |
| | *Seahorse* | 14/9/31 | 15/11/32 | 26/7/33 |
| 1931 | *Shark* | 12/6/33 | 31/5/34 | 5/10/34 |
| 1931 | *Sealion* | 16/5/33 | 16/3/34 | 21/12/34 |
| 1932 | *Snapper* | 18/9/33 | 25/10/34 | 6/35 |
| 1932 | *Salmon* | 15/6/33 | 30/4/34 | 8/3/35 |
| 1933 | *Seawolf* | 25/8/34 | 28/11/35 | 12/3/36 |
| 1934 | *Sunfish* | 22/7/35 | 30/9/36 | 13/3/37 |
| | *Spearfish* | 23/5/35 | 21/4/36 | 9/12/36 |
| 1935 | *Sterlet* | 14/7/36 | 22/9/37 | To be '38 |

### 4 Swordfish class.



SWORDFISH, showing gun before C.T. 1937, " *Fighting Sh*

1, 40

4 *Chatham Dockyard :* **Swordfish, Sturgeon, Starfish, Seahorse.**

1,40

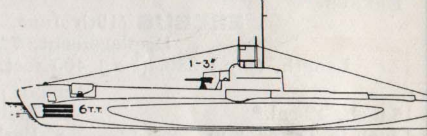
Displacement : 640/935 tons. Complement : 40.

Dimensions : 187 (*pp.*), 200¾ (*w.l.*) × 23½ × 10⅓ feet (*mean*).

Guns : **1**—3 inch, **1** M.G. Tubes : **6**—21 inch (bow).

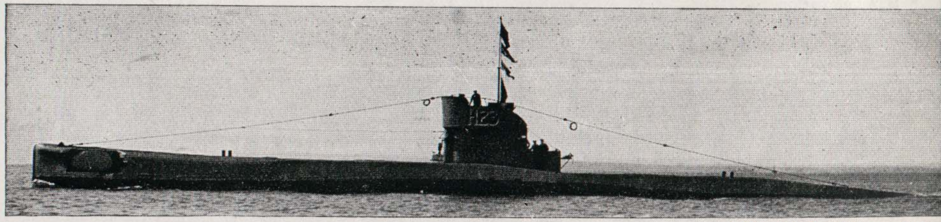
H.P. : 1550/1300 = 13·75/10 kts.

Fuel : 44 tons.



Plan of *Swordfish* and *Shark* types.

### 9 "H" Class.



1920 *Photo, Gieves, Ltd.*

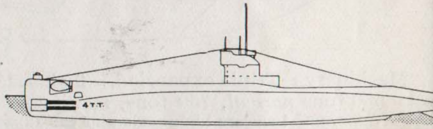
*H* 28, 31, 32, 49, 50, as above; *H* 33, 34, have flat-topped C.T.; and *H* 43, 44 have right angled instea curved after screen to C.T.

3 *Vickers :* **H 28, H 31, H 32** (all 1918).

2 *Cammell Laird :* **H 33, H 34** (both 1918).

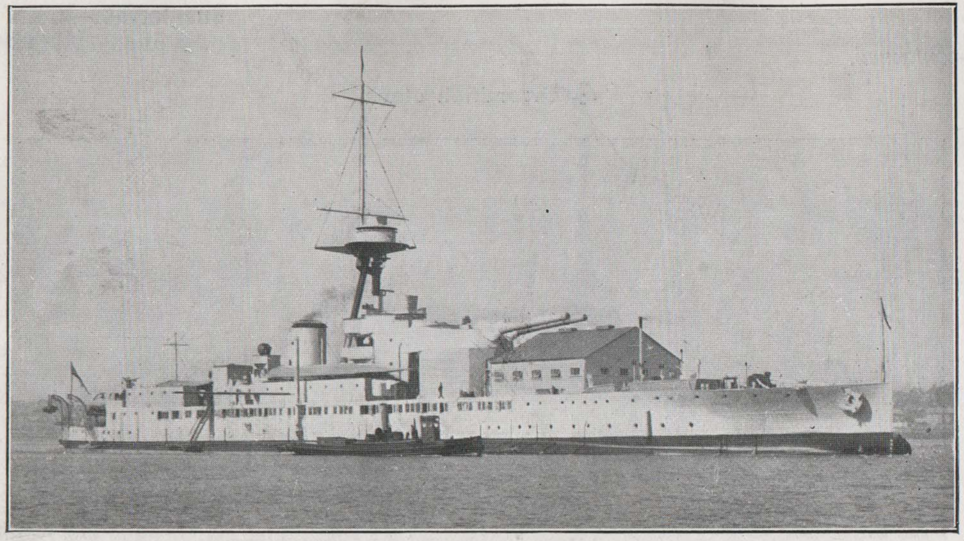
2 *Beardmore :* **H 49, H 50** (both 1919).

2 *Armstrong Whitworth :* **H 43, H 44** (both 1919).



Single-hull " Holland " (Electric Boat Co.) type modified by Admiralty. Displacement, 410/500 tons. Dimensions : (*p.p.*), 170 (*o.a.*) × 15¾ × 12½ feet. Tubes : 4—21 inch bow. Machinery : 2 sets of Diesel engines, 8 cylin 4-cycle, air injection " H " type, developing 240 B.H.P. at 375 r.p.m., and built by Vickers, North British D Co., Ruston & Hornsby, &c. Oil : 16 tons. D.H.P. 480/320 = 13/10·5 kts. 1 M.G. Complement, 22.

*Notes.*—All built under War Emergency Programme. Launching dates as above. First boat delivered January, 1 and *H* 44 last, in March, 1920. *H* 29 sank in dock at Devonport, August, 1926, and placed on disposal li consequence. *H* 51 on disposal list, 1923; *H* 21, 1924; *H* 26, *H* 52, 1927; *H* 22, *H* 25, 1928; *H* 42 lost 1922; sunk by collision with *L* 12, July, 1929. *H* 23, *H* 24, *H* 27, *H* 48 scrapped.



EREBUS. 1929 *Photo, R. Perkins, Esq.*

## **EREBUS** (19th June, 1916), **TERROR** (18th May, 1916).

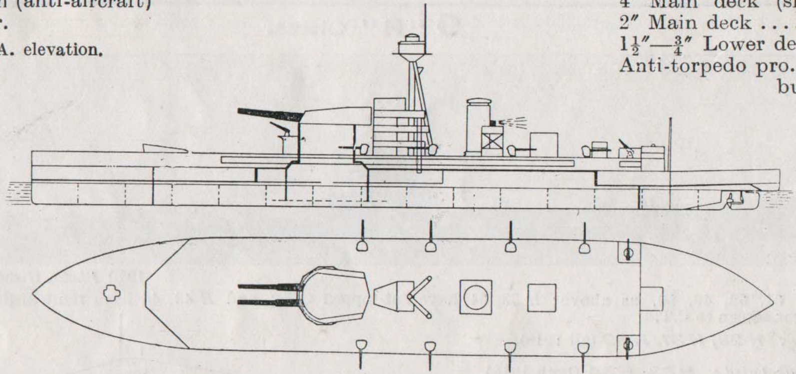
Displacement, 7200 tons. Complement, 315

Length, (*p.p.*) 380, (*o.a.*) 405 feet. Beam, 88 feet. *Mean* Draught, 11 feet.

Guns:
- 2—15 inch, 42 cal.*
- 8—4 inch in *Terror*, 2 in *Erebus*.
- 2—3 inch (anti-aircraft)
- 8 smaller.

* H.A. elevation.

Armour:
- 4″ Bulkheads, F. & A.
- 8″ Barbette ........
- 13″—4¼″ Gunhouse ....
- 4″ Box citadel (over magazines) ......
- 6″ C.T. ..............
- 1″ Fo'cle & upper decks
- 4″ Main deck (slopes)
- 2″ Main deck ........
- 1½″—¾″ Lower deck ..
- Anti-torpedo pro. bulges.



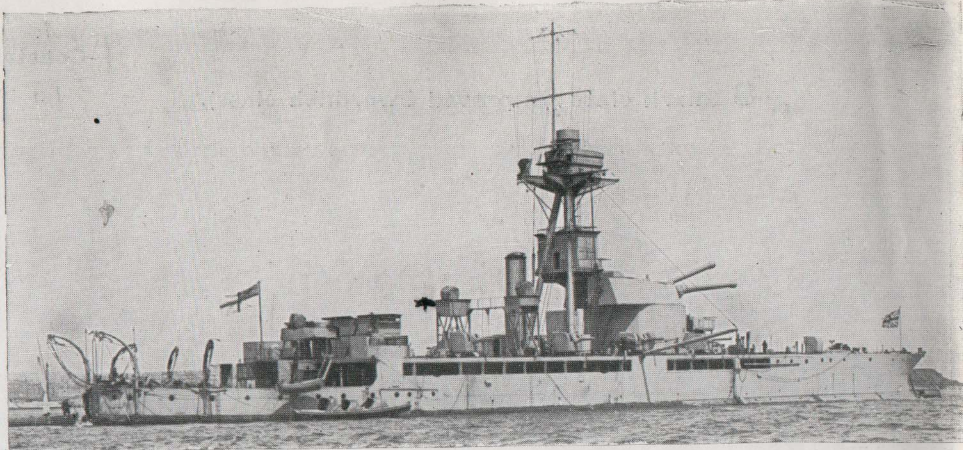
Machinery: Triple expansion. 2 shafts. Boilers: Babcock. Designed H.P. 6000=12 kts. Fuel: 650 tons *normal*, 750 tons, *maximum*, oil only.

*Gunnery Notes.*—15 inch are high angle and can range up to 40,000 yards. Smoke screen apparatus fitted. *Erebus* has 15 inch removed from *M. Ney.*

*Special Protection.*—Bulges about 15 feet deep, sub-divided into 50 w.t.c.

| *Name* | *Builder and Machinery* | *Begun* | *Completed* | *Trials* |
|---|---|---|---|---|
| *Erebus* | Harland & Wolff (Govan) | Oct., 1915 | Sept., 1916 | 7244 H.P. = 14·1 kts. |
| *Terror* | Harland & Wolff (Belfast) | Oct., 1915 | Aug., 1916 | 6235 H.P. = 13·1 kts. |

*General Notes.*—Both Emergency War Programme. *Erebus* fitted out as Cadets' T.S., with extra cabin accommodation on upper deck, and other alterations, but no longer so employed. She has a bow rudder fitted under forefoot.



MARSHAL SOULT. 1923 *Photo, Abrahams, Devonport.*

## **MARSHAL SOULT** (17th June, 1915).

Displacement, 6400 tons. Complement, 280.

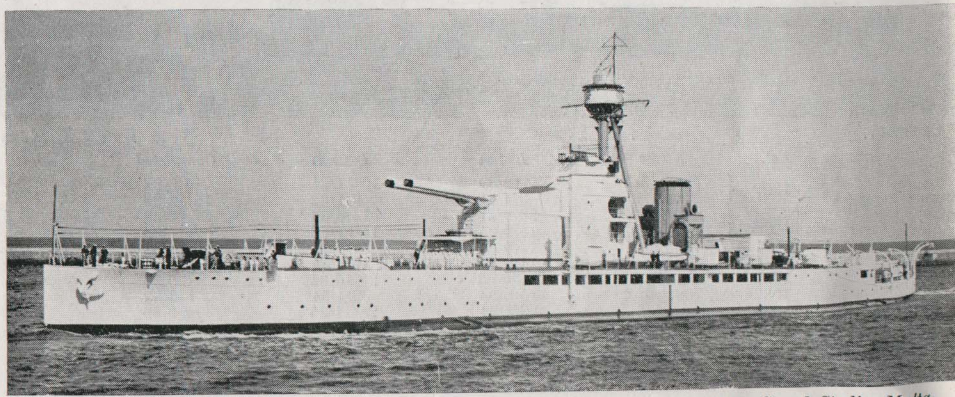
Length, 340 (*p.p.*), 355⅔ (*o.a.*) feet. Beam, 90¼ feet. Draught, 10½ feet.

Guns: **2**—15 inch (DIR. CON.), H. A. elevation, **8**—4 inch, **2**—3 inch AA., **2**—2 pdr. AA. **4** Lewis (disposed similarly to *Erebus* and *Terror*). Armour: 8″ Barbette, 13″—4¼″ Gunhouse 4″ Bulkheads fore and aft, 6″ C.T., 4″—1″ Box Citadel over Magazine, 1″ Fo'cle Deck 2″—1½″ Upper Deck, Lower Deck 3″ at bow, 1½″ at stern, 1″ Navig. Position. Deep bulg Protection.

Machinery: 2 sets Diesel. 4 shafts. Designed H.P. 1500 = 6·7 kts. Fuel: 235 tons *maximum* oil only.

| *Name* | *Builder* | *Machinery* | *Begun* | *Completed* | *Trials* |
|---|---|---|---|---|---|
| *M. Soult* | Palmer | Vickers | Jan., 1915 | Nov., 1915 | 1898 H.P. = 6·6 kts. |

*General Notes.*—Emergency War Programme. Serves as Gunnery Training Ship at the Nore. Sister Ship *M. Ne* now Hulk *Drake*, at Devonport.



TERROR. 1934, *Grand Studio, Malta.*

## 2 Black Swan Class.

(For a third ship of this design, see *Pelican*, under Surveying Vessels, on a later page.)

*Authorised.*

**BLACK SWAN, FLAMINGO.**

To be ordered under 1937 Estimates. Displacement : 1,200 tons. Dimensions : not announced.

Guns : Believed to be as in *Egret*, below. Machinery : Geared turbines. S.H.P. : 3,600 = 19·25 kts. Boilers : 2, of 3-drum type.

---

## 1 Improved Bittern Type

(For a second ship of this design, see *Auckland*, under Surveying Vessels, on a later page.)

*Building.*

1 *White* : **EGRET.**

Displacement : 1,100 tons. Complement :

Dimensions : Not announced.

Guns : **6**—4 inch AA.
**5** smaller.

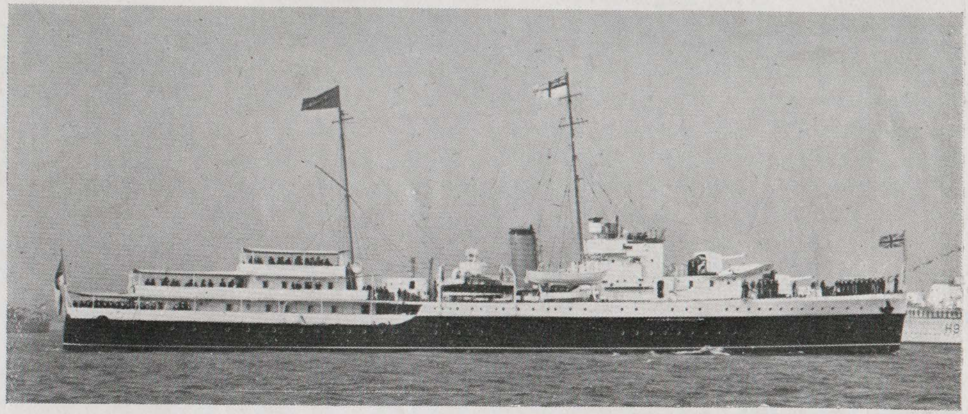
Machinery : Parsons geared turbines.

S.H.P. : 3,600 = 19·25 kts. Boilers : 2 Admiralty 3-drum type.

*Note.*—Laid down July 21, 1937, under 1936 Estimates.

## 2 Bittern Class.

(For a third ship of this design, see Surveying Vessel *Stork*, on a later page.)



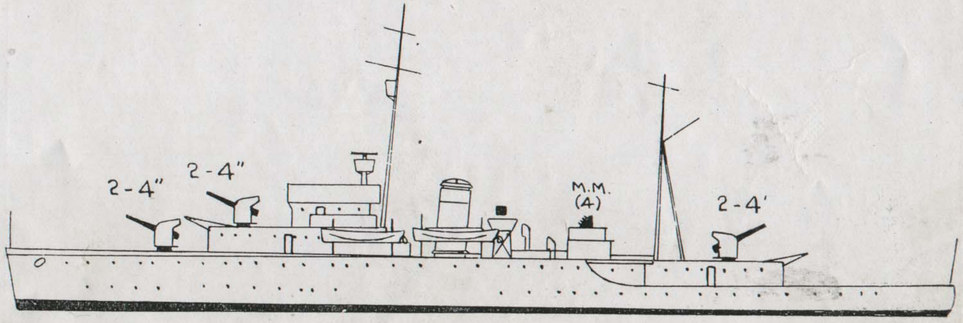
ENCHANTRESS. 1937, "*Fighting Ships.*"

1 *Clydebank* : **ENCHANTRESS** (ex-*Bittern*), (Dec. 21, 1934).

1 *White* : **BITTERN** (July 14, 1937).

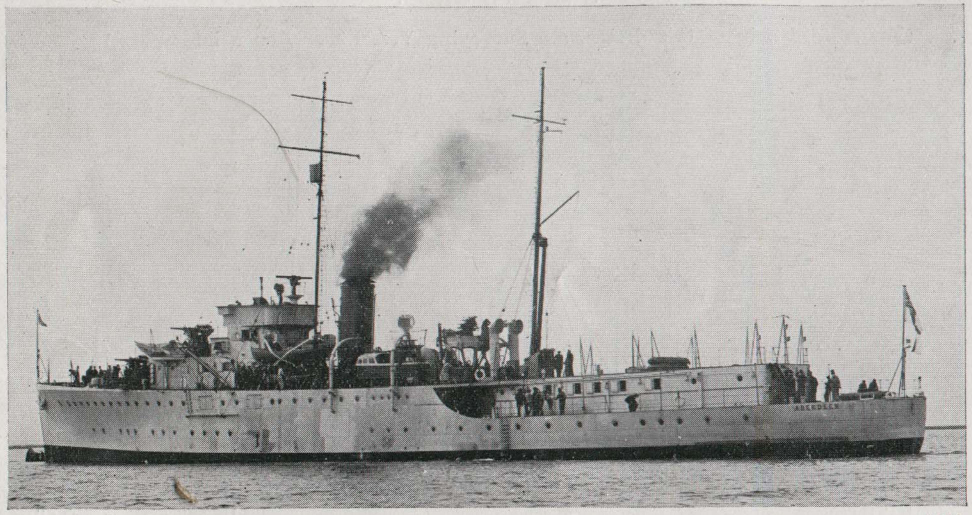
Displacement : 1,190 tons. Complement : 125.
Dimensions : 266 (*w.l.*) × 37 × 8½ feet (*mean*).
Guns : (*Enchantress*) **4**—4·7 inch (Only 2 mounted at present).
**4**—3 pdr.
**8** smaller.
(*Bittern*) **6**—4 inch AA.
**5** smaller.
Machinery : Brown-Curtis and Parsons geared turbines respectively.
S.H.P. : 3,300 = 18 kts. Boilers : 2 Admiralty 3-drum type. Oil : 270 tons.

*Notes.*—*Enchantress* laid down March 9th, 1934 ; completed April, 1935. Design allows for removal of deckhouse aft, provided for use as Admiralty yacht, in order to mount two more 4·7 inch guns when required. *Bittern* laid down in Aug., 1936 for completion in Jan., 1938.
Cost of *Enchantress* was £169,175 ; of *Bittern*, £223,668.
*Estimates.*—*Enchantress*, 1933 ; *Bittern*, 1935.



BITTERN.

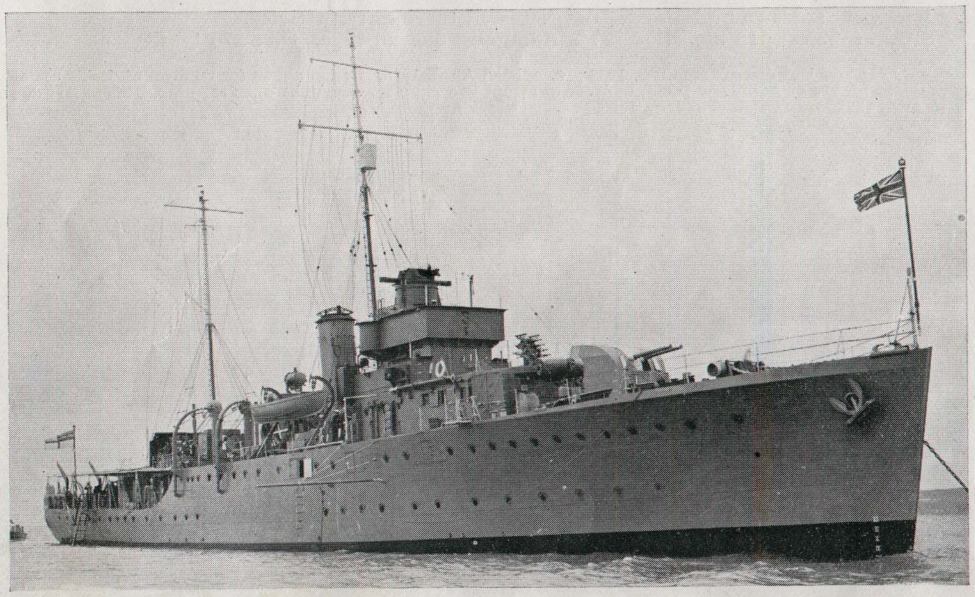
## **2** Aberdeen class



ABERDEEN. 1936

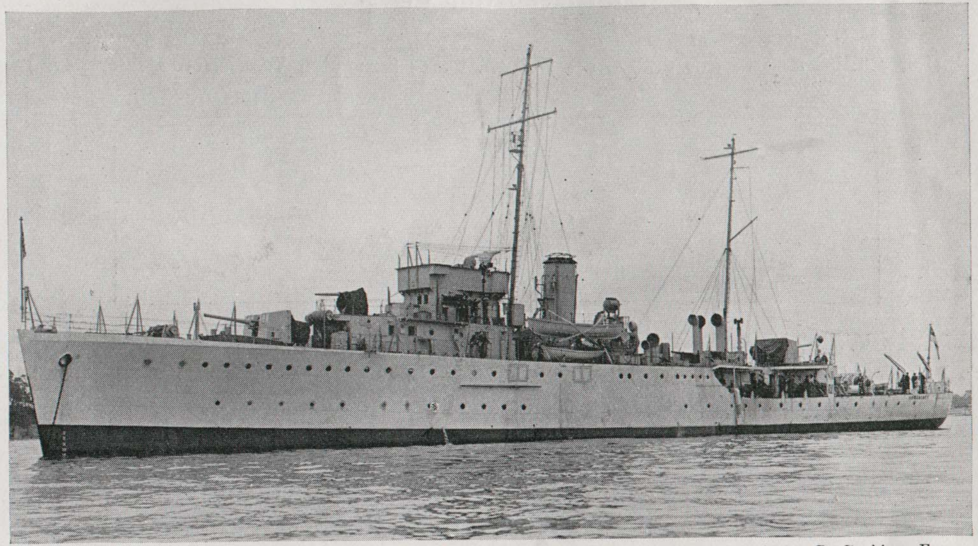
2 *Devonport Dockyard* : **ABERDEEN** (Jan. 22, 1936), **FLEETWOOD** (March 24, 1936).
Displacement: 1,060 tons. Complement, 100.
Dimensions: 250 (*p.p.*), 262 (*w.l.*), 266 (*o.a.*) × 36 × $7\frac{1}{2}$ feet (*mean*).
Guns: **4**—4 inch AA., **4**—3 pdr., **11** M.G. (*Aberdeen*, only **2**—4 inch at present).
Machinery: 2 sets Parsons geared turbines. S.H.P.: 2,000=16·5 kts.
Boilers: 2 Admiralty 3-drum type. Oil fuel: 280 tons.

*Notes.*—Built under 1934 Estimates. Are improvements on the *Grimsby* design, closely resembling Australian sloops *Yarra* and *Swan*. *Aberdeen* carries two 4 inch guns less than *Fleetwood*, in order to provide for extra accommodation required while attached to flagship of Mediterranean Fleet.

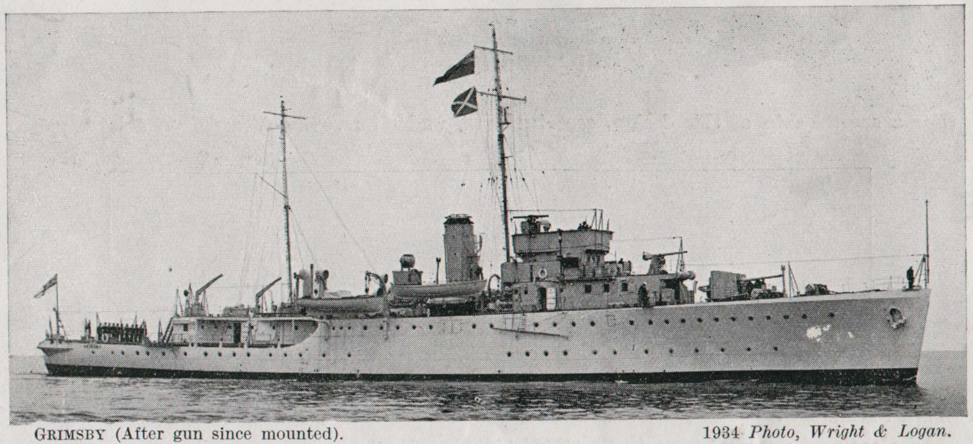


FLEETWOOD (Observe special armament). 1937, "*Fighting Ships*."

## **6** Grimsby class



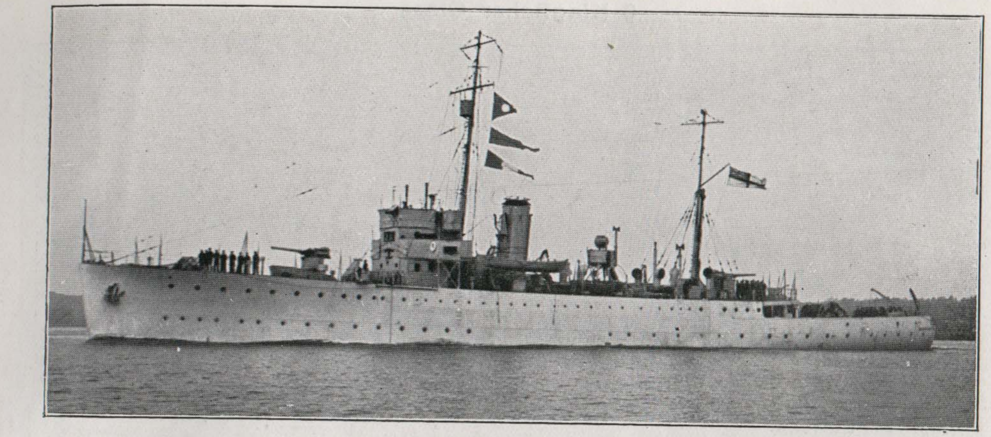
LOWESTOFT. 1934, *R. Perkins, Esq.*



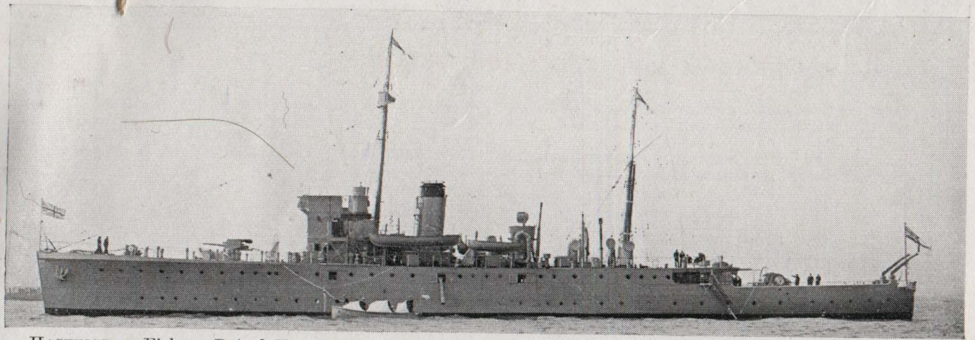
GRIMSBY (After gun since mounted). 1934 *Photo, Wright & Logan.*

5 *Devonport Dockyard* : **GRIMSBY** (July 19, 1933), **LEITH** (Sept. 9, 1933), **LOWESTOFT** (April 11, 1934), **WELLINGTON** (May 29, 1934), **LONDONDERRY** (Jan. 16, 1935),
1 *Chatham Dockyard* : **DEPTFORD** (Feb. 5, 1935).
Displacement: 990 tons. Complement: 100.
Dimensions: 250 (*p.p.*), 262 (*w.l.*), 266 (*o.a.*) × 34 × $7\frac{1}{4}$ (*mean*), $8\frac{3}{4}$ feet (*max*). *Deptford* and *Londonderry* are 36 × $7\frac{1}{2}$ feet *mean*.
Guns: **2**—4·7 inch, **1**—3 inch AA., **2**—3 pdr., **10** M.G. (**4**—3 pdr. in last 2 ships).
Machinery: 2 sets Parsons geared turbines by J. S. White & Co., Ltd. S.H.P.: 2,000=16 kts.
Boilers: 2 Admiralty 3-drum type. Oil fuel: 275 tons (280 in last two ships).

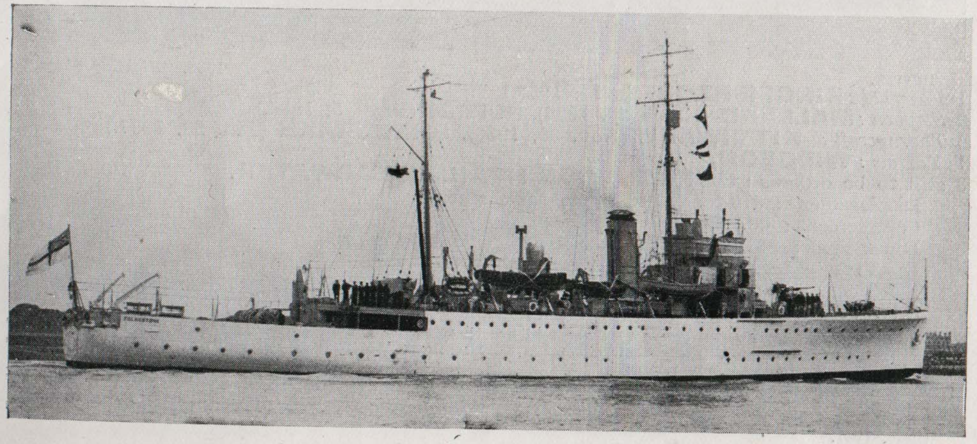
*Notes.*—Differ from preceding types in having A.A. gun on superstructure forward. *Grimsby* fitted for minelaying on quarterdeck. Built under following Estimates; 1931, *Grimsby, Leith*; 1932, *Lowestoft, Wellington*; 1933, *Londonderry, Deptford*. Cost from £160,000 to £175,000 each.



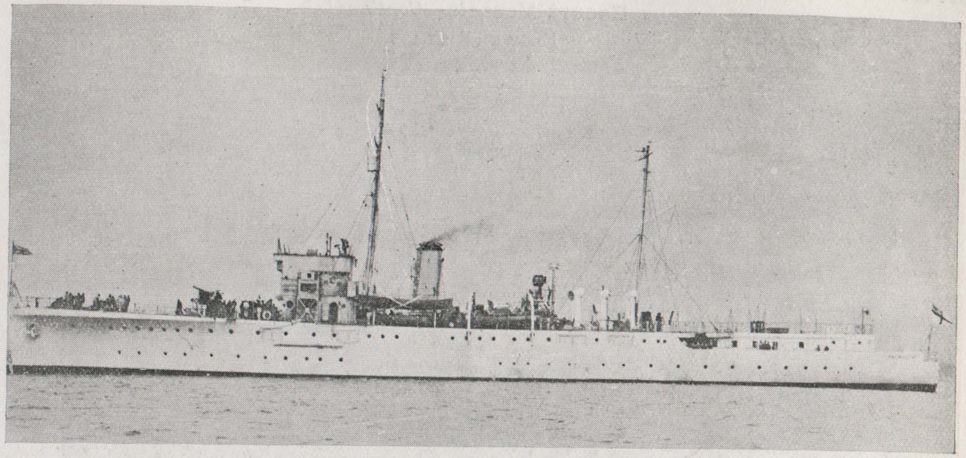
BRIDGEWATER. (SANDWICH similar; observe forecastle.) 1929 *Photo, Abrahams, Devonport.*



HASTINGS as Fishery Patrol Vessel. 1937, "*Fighting Ships.*"



FOLKESTONE. 1930 *Photo, Cribb.*



FALMOUTH. (With one 4 inch. Uncertain if second has since been mounted.) 1932 *Photo, R. Perkins, Esq.*

(2 BRIDGEWATER CLASS + 4 HASTINGS CLASS + 8 SHOREHAM CLASS—TOTAL 14 SHIPS.)

2 *Hawthorn Leslie :* **BRIDGEWATER** (Sept. 14, 1928, **SANDWICH** (Sept. 28, 1928).

2 *Swan Hunter :* **FOLKESTONE** (Feb. 12, 1930). **SCARBOROUGH** (March 14, 1930).

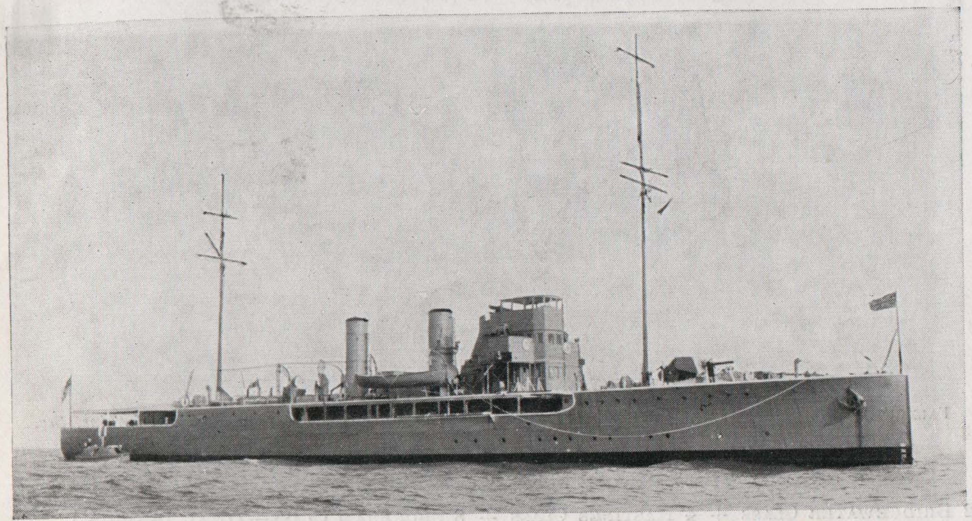
7 *Devonport Dockyard :* **HASTINGS, PENZANCE** (both April 10, 1930). **FOWEY** (Nov. 4, 1930). **BIDEFORD** (April 1, 1931), **FALMOUTH** (April 19, 1932), **MILFORD** (June 11, 1932). **WESTON** (ex-*Weston-super-Mare*). (July 23, 1932).

3 *Chatham Dockyard :* **SHOREHAM** (Nov. 22, 1930). **ROCHESTER** (July 16, 1931). **DUNDEE** (Sept. 20, 1932).

Displacement : 1025/1105 tons (about 1,250 tons deep load). Dimensions : 250 (*p.p.*) 266 (*o.a.*) × 34 × 8 feet (SHOREHAM class), 9 feet (earlier classes) (*mean*). Guns : **2**—4 inch AA., (*Hastings*, **1**—4 inch), **10**—**12** smaller. Machinery : Parsons impulse reaction turbines (single reduction gearing). 2 shafts. 2 Admiralty 3-drum type boilers, pressure 250 lbs. Designed S.H.P. : 2,000 = 16—16·5 kts. Oil : 275 tons. Designed for service abroad and fitted for minesweeping. *Bridgewater* and *Sandwich* built under 1927 Estimates and both completed March, 1929. Under 1928 Estimates : *Hastings, Penzance, Folkestone* and *Scarborough*, completed 1930–31. Under 1929 Estimates : *Fowey, Shoreham, Bideford, Rochester*, completed 1930–32. Under 1930 Estimates: *Falmouth, Milford, Weston, Dundee*, completed 1932–33.

## Escort Vessels—*Continued*

### "FLOWER" CLASS



LUPIN. 1936, *P. A. Vicary Cromer.*

(ARABIS TYPE.)

1 *Simons :* **LUPIN** (May, 1916).
1 *Richardson Duck :* **ROSEMARY**

Displacement : 1,175 tons.
Complement : 98.
Dimensions : 267¾ (*o.a.*) × 33½ × 11 feet.

(ACACIA TYPE.)

1 *Barclay Curle :* **FOXGLOVE** (Mar., 1915).

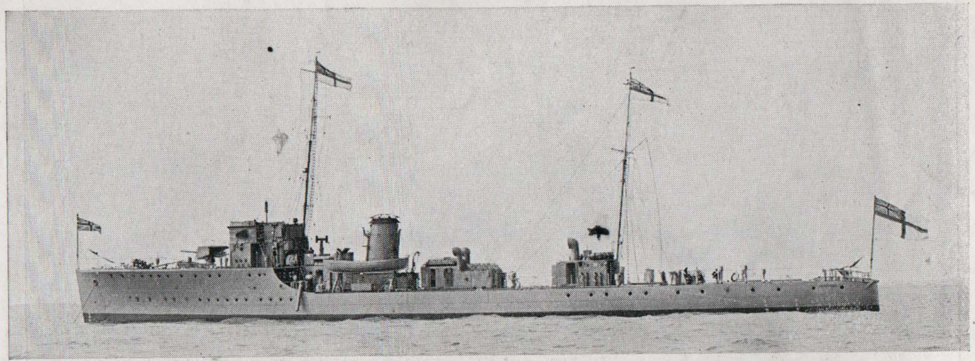
Displacement : 1,165 tons.
Complement : 104.
Dimensions : 262½ (*o.a.*) × 33 × 11 feet.

In all : Guns : **2**—4 inch, **14** smaller.
I.H.P. : 2,000 = 16·5 kts.
Machinery : 1 set Triple expansion. 1 shaft.
Boilers : 2 cylindrical.
Coal : 130/200 tons = about 2,000 miles at 15 kts.
(*Lupin* is oil fired.)

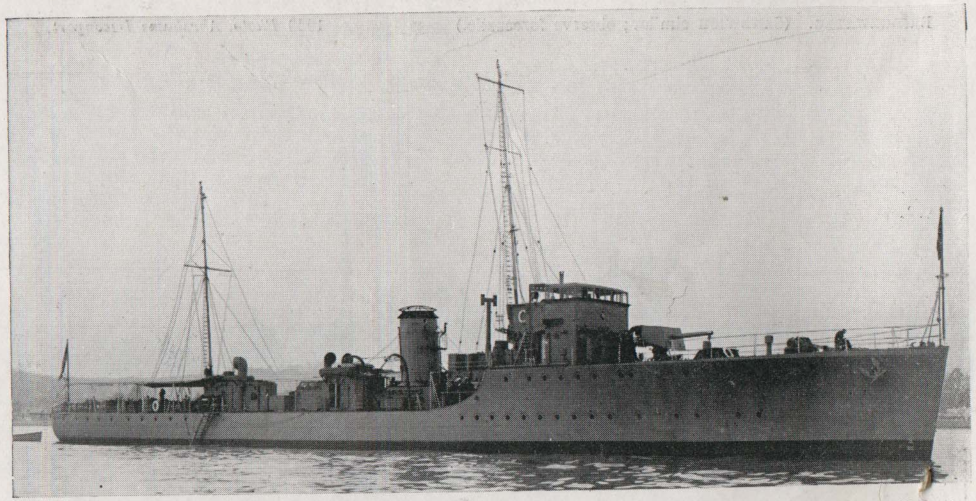
*Notes.*—Others of this class are *President* (ex-*Saxifrage*) and *Chrysanthemum*, which are used as headquarters and drillships for London Division R.N.V.R. ; *Cornflower*, now Harbour Drillship for *Hongkong* R.N.V.R., and *Laburnum*, fulfilling a similar function at Singapore.

## Patrol Vessels

### 6 Kingfisher Class



KINGFISHER (Bridge now covered in). 1935, *R. Perkins, Esq.*



PUFFIN. 1936, *"Fighting Ships."*

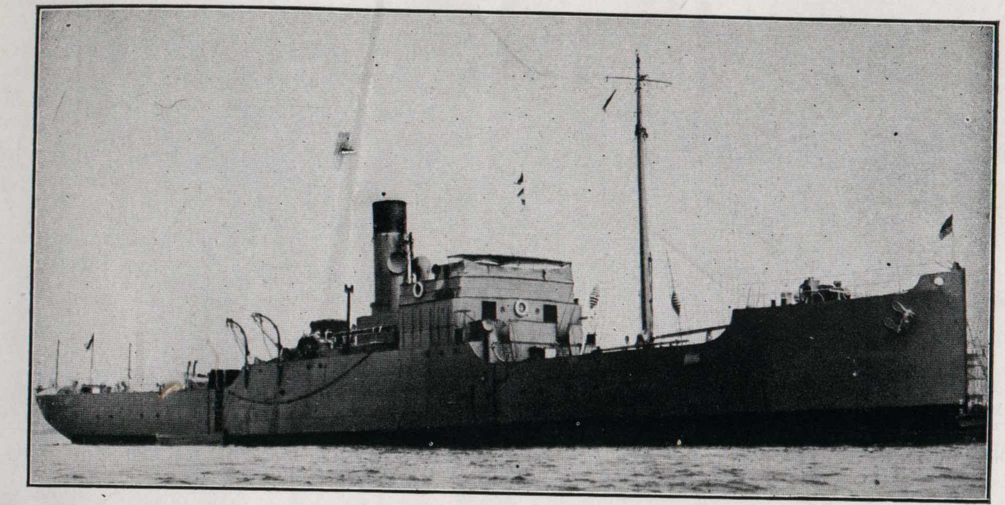
1 *Fairfield :* **KINGFISHER** (Feb. 14, 1935.)
2 *Stephen :* **MALLARD** (March 26, 1936), **PUFFIN** (May 5, 1936.)
2 *Thornycroft :* **KITTIWAKE** (Nov. 30, 1936), **SHELDRAKE** (Jan. 28, 1937.)
1 *Yarrow :* **WIDGEON.**
3 still to be ordered : **GUILLEMOT, PINTAIL, SHEARWATER.**

Displacement : 510 tons (first 3), 530 tons (others).
Complement : 60.
Dimensions : 234 (*p.p.*), 240 (*w.l.*) × 26½ × 6½ feet (*mean*).
Guns : **1**—4 inch. **8** smaller.
Machinery : Parsons geared Turbines.
S.H.P. : 3,600 = 20 kts. Boilers : 2 Admiralty 3-drum. Oil : 160 tons.

*Note.*—Are designed for coastal convoy service and are therefore of smaller steaming radius but higher speed than the larger escort vessels. In general conception they resemble "P" boats and will rely upon depth charges as their main offensive equipment.

*Kingfisher* laid down June 1st, 1934 : completed June, 1935. Cost £93,288. *Mallard* and *Puffin* cost £214,379 for the pair.

*Estimates.*—*Kingfisher*, 1933 : *Mallard* and *Puffin*, 1934 : *Kittiwake* and *Sheldrake*, 1935 : *Widgeon*, 1936 ; remaining three, 1937.



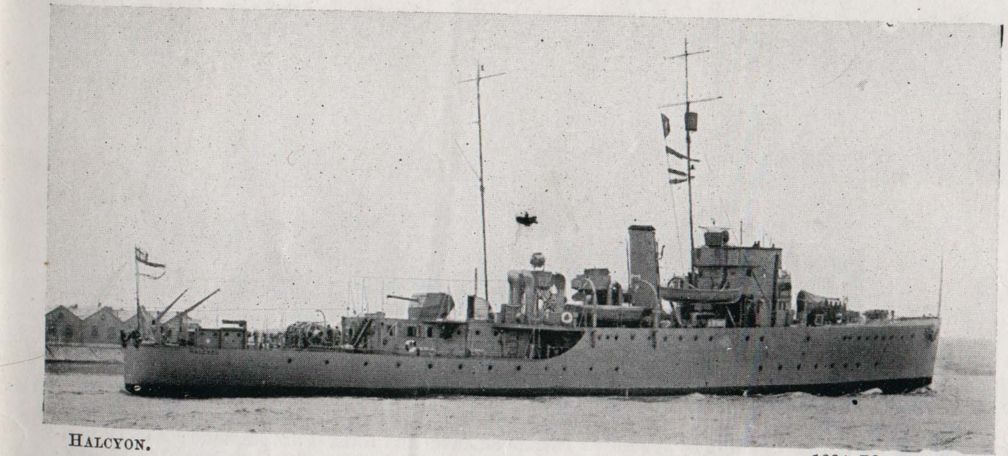
1926 *Photo, Abrahams & Sons, Devonport.*

***P.C.74*** (J. S. White & Co., 1918).
Dimensions: 610 tons: 233 (*p.p.*), 247 (*o.a.*) × $26\frac{3}{4}$ × 8 feet. Guns: **1**—4 inch, **2**—3 inch. **24**—**30** D.C. Machinery: Parsons or Brown-Curtis geared turbines. Boilers: White-Forster. 2 shafts. Designed S.H.P.: 3,500=20 kts. Oil: 164 tons *max.* Complement: 56.

*General Notes.*—Built under Emergency War Programme. Design converted or modified while building, to act as Submarine Decoy Vessel or "Q-boat." It was expected that, on account of shallow draught, torpedoes fired by U-boats would under-run *P.C.*-boats. To be discarded in 1938.

For another survivor of this type, see H.M.I.S. *Pathan.*

## Minesweepers

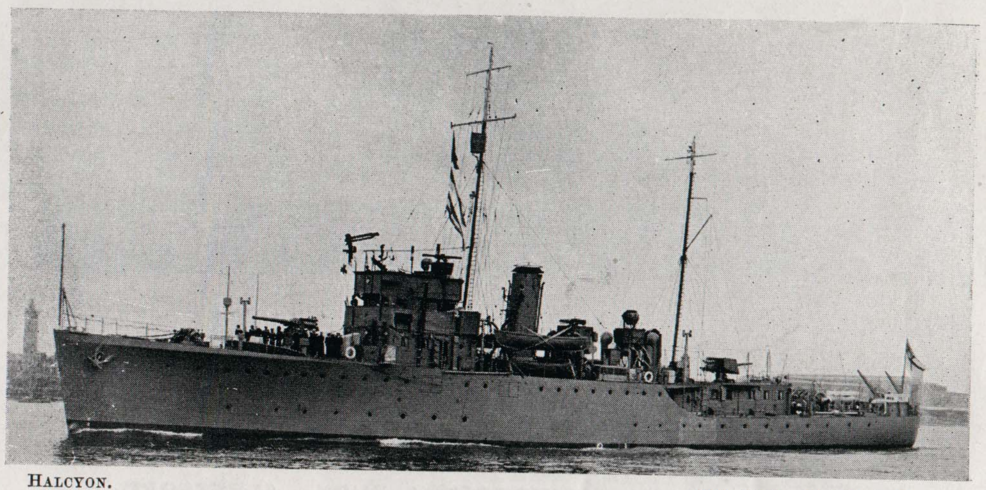


HALCYON.

1934 *Photo, Cribb.*

## Minesweepers

### 17 Halcyon class



HALCYON.

1934 *Photo, Wright & Logan.*

2 *Clydebank:* **HALCYON** (Dec. 20, 1933). **SKIPJACK** (Jan. 18, 1934).

2 *Thornycroft:* **HARRIER** (April 17, 1934), **HUSSAR** (Aug. 27, 1934).

4 *Hamilton:* **SPEEDWELL** (March 21, 1935), **GOSSAMER** (Oct. 5, 1937), **SPEEDY** (building), **SPHINX** (building).

2 *White:* **NIGER** (Jan. 29, 1936), **SALAMANDER** (March 24, 1936).

6 *Devonport Dockyard:* **HEBE** (Oct. 28, 1936), **SHARPSHOOTER** (Dec. 10, 1936), **LEDA** (June 8, 1937), **SEAGULL** (Oct. 28, 1937), **BRAMBLE** (building), **BRITOMART** (building).

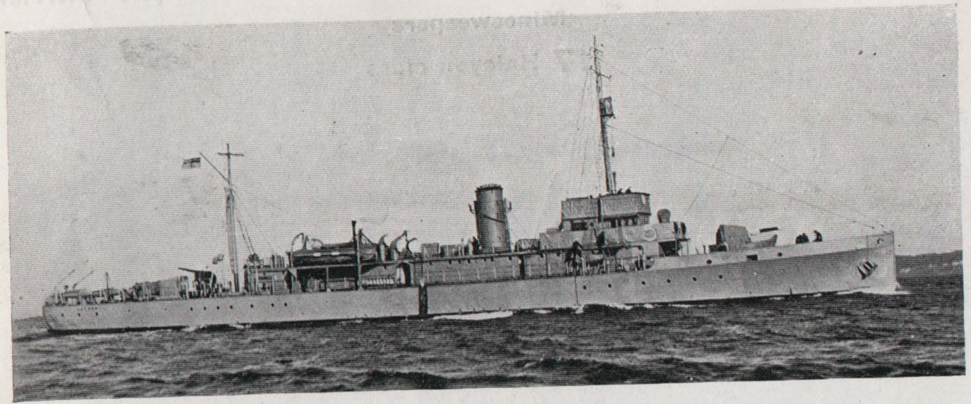
1 *Gray:* **HAZARD** (Feb. 26, 1937).
Displacement: 815 tons. Complement, 80.
Dimensions: 230 × $33\frac{1}{2}$ × $7\frac{1}{4}$ feet (*max.*), $6\frac{5}{6}$ feet (*mean*).
Guns: **1**—4 inch, **1**—4 inch AA., **9** M.G. in first seven; **2**—4 inch AA., **5** smaller in others.

Machinery: 2 sets 3-cylinder compound engines, fitted with poppet valves operated by rotary cam gear under totally enclosed forced lubrication system, in first 5; triple expansion in *Niger* and *Salamander;* geared turbines in others (by J. S. White & Co. in *Speedy, Sphinx*).

I.H.P.: 1,770 = 16·5 kts. (first 5); 2,000 = 17 kts. in *Niger and Salamander;* 1,750 = 17 kts. in others. Boilers: 2 Admiralty 3-drum type. Oil fuel: 220 tons.

*Notes.*—Most of this class are named after minesweepers of 1914. Outstanding feature of earlier units is the novel machinery design. *Halcyon, Skipjack,* built under 1931 Estimates: *Harrier, Hussar,* under 1932: *Speedwell,* 1933: *Salamander, Niger,* 1934: *Hazard, Hebe, Sharpshooter* 1935: *Gossamer, Leda, Seagull,* 1936; *Bramble, Britomart, Speedy, Sphinx,* 1937. Cost averages over £100,000 each.

## Minesweepers—*continued*.



SUTTON. 1931 *Photo, Kestin, Weymouth.*

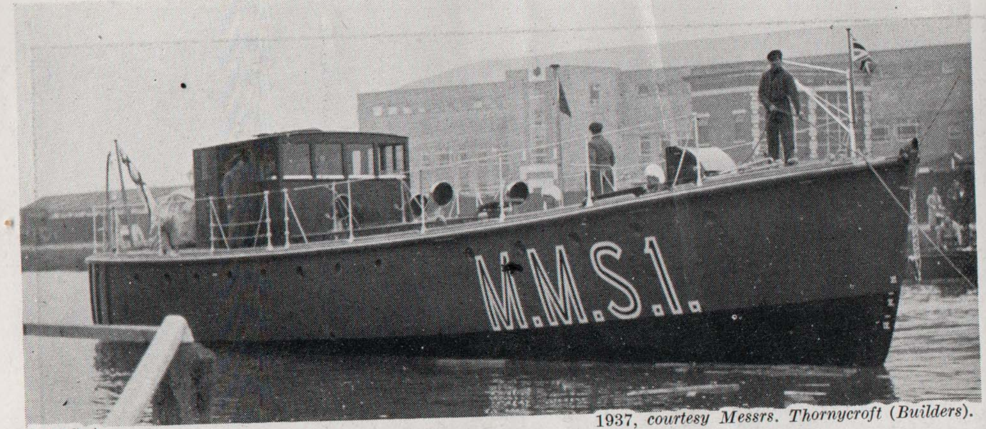
(TWIN SCREW CLASS—23 SHIPS.)

4 *Ailsa S.B. Co.:* **ABERDARE, ABINGDON, ALBURY, ALRESFORD.**
1 *Ardrossan Co.:* **BAGSHOT.**
2 *Clyde S.B. Co.:* **DERBY, DUNDALK, DUNOON.**
1 *Dundee S.B. Co.:* **FERMOY.**
1 *Dunlop Bremner:* **FAREHAM.**
2 *Eltringhams:* **HARROW, HUNTLY.**
2 *Lobnitz:* **PANGBOURNE, ROSS.**
1 *McMillan:* **SUTTON.**
3 *Murdoch & Murray:* **SALTASH, SALTBURN, SELKIRK.**
1 *Napier & Miller:* **WIDNES.**
1 *Chas. Rennoldson:* **STOKE.**
2 *Simons:* **TEDWORTH, ELGIN.**
1 *Fairfield:* **LYDD.**

All built under Emergency War Programme and launched between June, 1917 and Aug., 1919. Displacement, 710 tons; *except Tedworth*, 675 tons. Dimensions: 220 (*p.p.*), 231 (*o.a.*) × 28⅜ *Tedworth* 28 × 7½ ft. (*mean* draught). Machinery: Vertical triple expansion. 2 shafts. Yarrow boilers. Designed I.H.P. 2200 = 16 kts.; *except Tedworth*, 1800 = 16 kts. Coal: 185 tons = *about* 1500 miles at full speed (*Tedworth*, only 140 tons). Complement of all, 73. Guns: **1**—4 inch, **1** smaller. *Tedworth*, none at present.

*Notes.*—All are stationed at Malta and Singapore, except *Selkirk* (in reserve), *Tedworth*, tender to Gunnery and Diving Schools, Portsmouth, and *Alresford* and *Saltburn*, tenders to Navigation School. There are various minor variations in these ships, *e.g.*, many have had deck houses built aft, &c. *Petersfield* lost 1932, *Marazion* scrapped 1933. *Forres*, *Caterham* and *Carstairs* scrapped 1934–35, *Tiverton* 1937. *Dunoon Elgin* and *Lydd* on Disposal List, 1936, but decision reconsidered and ships refitted.

## 3 Motor Minesweepers.



M.M.S. 1. 1937, *courtesy Messrs. Thornycroft (Builders).*

2 *Thornycroft:* **M.M.S. 1** and **2** (1937). Built at Hampton-on Thames. Displacement: 32 tons. Dimensions: 75 × 14 × 5 feet. Complement: 11. Machinery: 3 Thornycroft Y. 12-cylinder petrol engines. 3 shafts. H.P.: 1,500 = 15 kts. (reduced to 10 kts. when sweeping.). Radius: 18 hours at full speed.

*Completing.*

1 *British Power Boat Co.:* **M.M.S. 51.** Laid down at Southampton, 1937.

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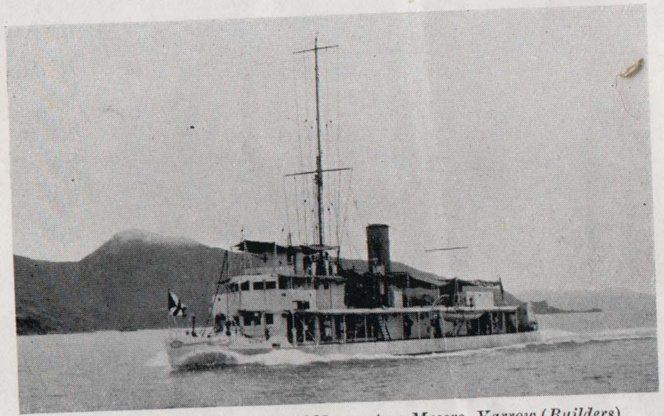
## River Gunboats.

**DRAGONFLY, GRASSHOPPER.** Displacement: 585 tons. Guns: 4 inch. Building under 1937 Estimates by Messrs. John I. Thornycroft & Co., Ltd.

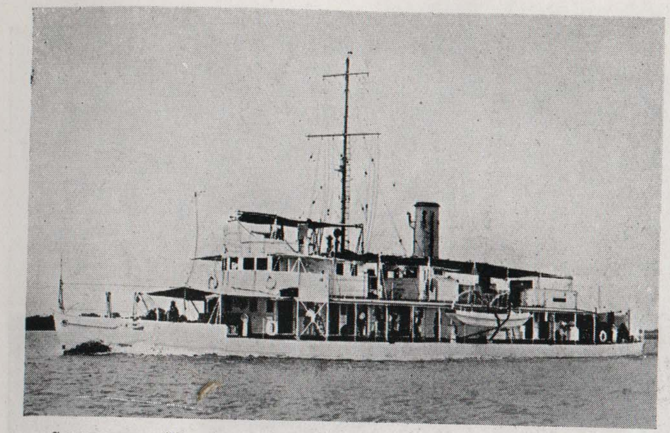
**SCORPION.** (J. S. White & Co., Ltd. Dec. 20, 1937). Built under 1936 Estimates Displacement: 670 tons. Dimensions: 208¾ (*o.a.*) × 34¼ × — feet. Guns: **2**—4 inch, **1**—3·7 inch howitzer, **10** smaller. Machinery: Geared turbines. S.H.P.: 4,500 = 17 kts.



1935, *courtesy Messrs. Yarrow (Builders).*

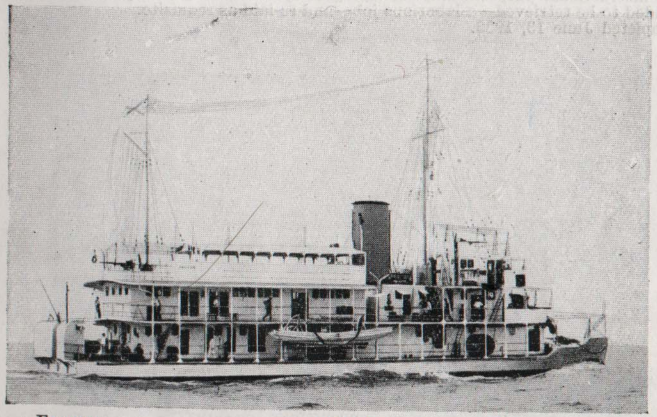
**ROBIN** (March 7, 1934). Built by Yarrow. Displacement: 226 tons. Complement: 35. Dimensions: 150 × 26⅔ × 3 feet (*mean*). Guns: **1**—3·7 inch Howitzer, **9** smaller. Machinery: 2 sets reciprocating. 1 Admiralty 3-drum type boiler. H.P.: 800 = 12·75 kts. Oil fuel: 41 tons.

### River Gunboats.—*continued.*



SANDPIPER. (Now has mainmast). 1933 *Photo, courtesy of builders.*

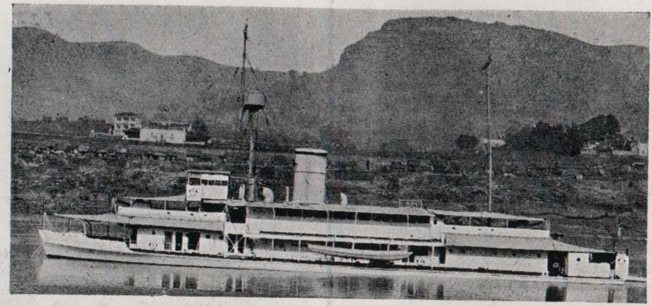
**SANDPIPER** (June 9, 1933). Built by Thornycroft. Displacement: 185 tons. Complement: 35. Dimensions: 160 × $30\frac{2}{3}$ × 2 feet (*mean*). Guns: **1**—3·7 inch Howitzer, **9** smaller. Machinery: 2 sets Reciprocating, 2 shafts, 1 Admiralty 3-drum type boiler. H.P.: 600 = $11\frac{1}{2}$ kts.



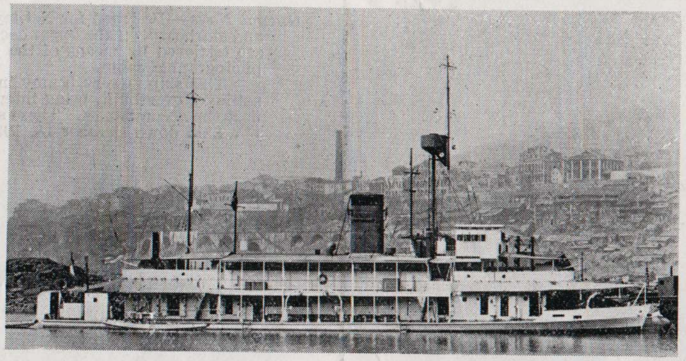
FALCON. 1931 *Photo, favour of Messrs. Yarrow.*

**FALCON** (1931) built by Messrs. Yarrow & Co., Ltd. Displacement: 372 tons. Complement: 55. Dimensions: 150 × $28\frac{2}{3}$ × 5 feet (*mean*). Guns: **1**—3·7 inch Howitzer, **2**—6 pdr., **10** M.G. Machinery: Parsons geared turbines. Boilers, 2 Admiralty 3-drum type. S.H.P.: 2,250 = 15 kts. Fuel: 84 tons oil.

### River Gunboats—*continued.*



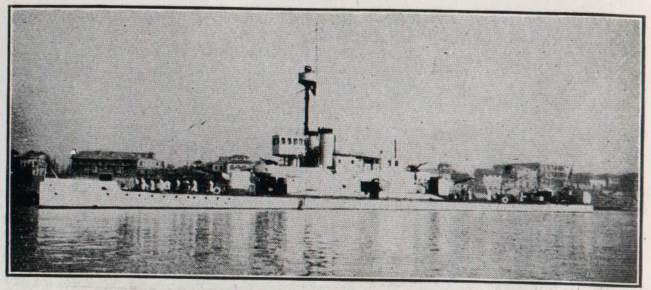
**GANNET** (1927) & **PETEREL** (1927), both designed and built by Messrs. Yarrow & Co., Ltd. Displacement, 310 tons. Dimensions: 177 (*w.l.*), $184\frac{2}{3}$ (*o.a*). × 29 × 3 ft. $2\frac{1}{2}$ ins. draught. Guns: **2**—3 inch AA., **8** M.G. Machinery: Geared turbines. Boilers: Yarrow. Designed H.P. 2250 = 16 kts. Fuel: 60 tons oil. Complement, 55.



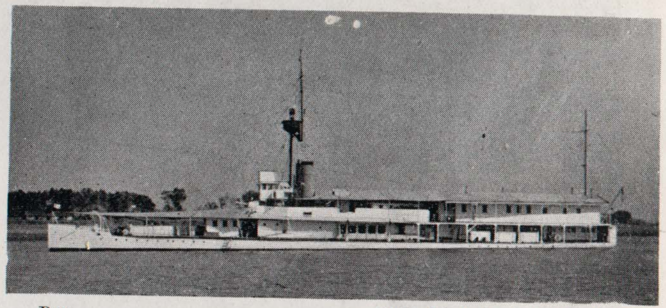
TERN. *Added 1937, courtesy Arthur Sye, late R.N.*

**SEAMEW** (1927), **TERN** (1927), both designed and built by Messrs. Yarrow & Co., Ltd. Displacement, 262 tons. Dimensions: 160 (*w.l.*), $167\frac{1}{2}$ (*o.a.*) × 27 × $5\frac{1}{6}$ feet *max.* draught. Guns: **2**—3 inch AA., **8** M.G. Armoured bridge and shields to guns. Machinery: Geared turbines. Boilers: Yarrow. Designed H.P.: 1,370 = 14 kts. Fuel: 50 tons oil. Complement: 55.

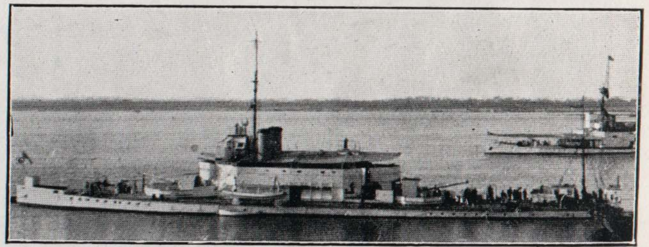
### River Gunboats—*continued.*



SCARAB. (GNAT identical.) *Photo added* 1925.
(TARANTULA has topmast *before* top.)



BEE. 1937, *Lieut. B. D. Gallie, R.N.*

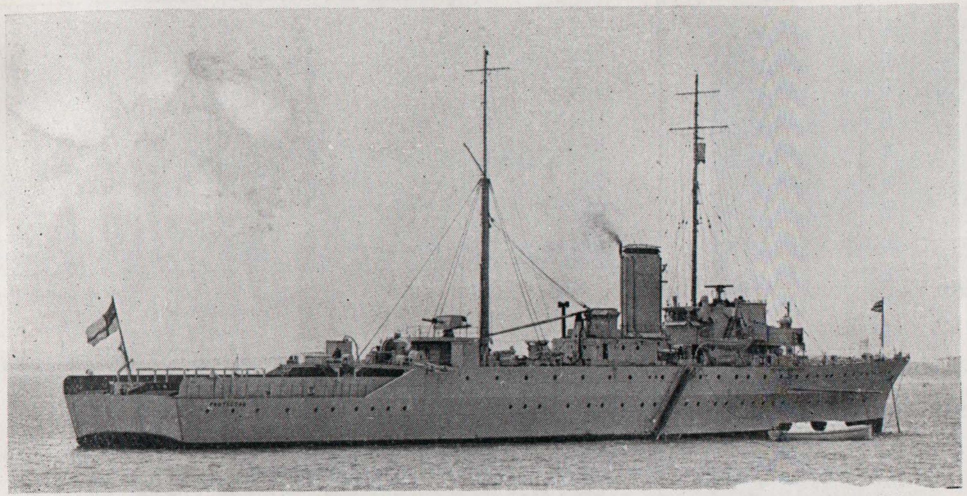


APHIS. (Other units similar, with taller funnels.) 1929 *Photo.*

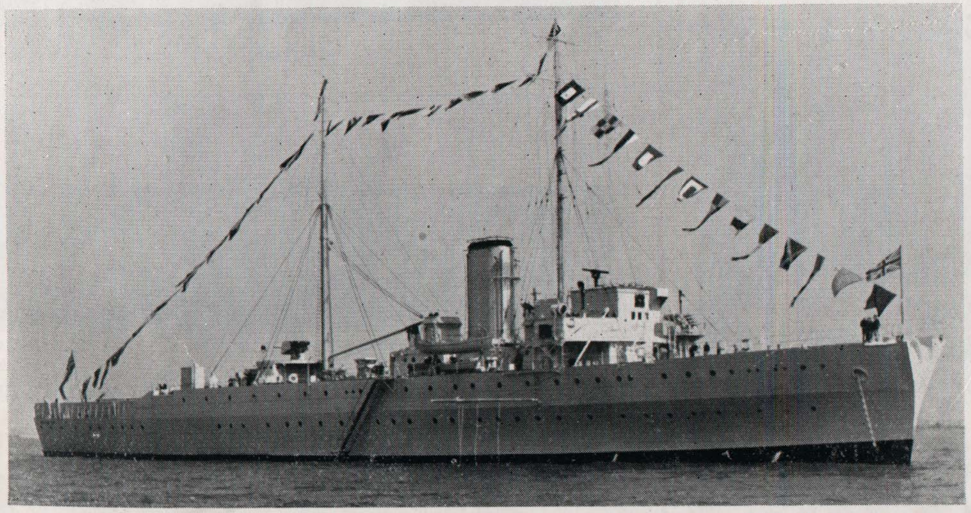
**APHIS** (1915), **BEE** (1916), both by Ailsa Co.
**CICALA** (1915), **COCKCHAFER** (1915), **CRICKET** (1915), all by Barclay Curle.
**GNAT** (1915), **LADYBIRD** (1915), both by Lobnitz.
**MANTIS** (1915), **MOTH** (1915) both by Sunderland S.B. Co.
**SCARAB** (1915), **TARANTULA** (1915), both by Wood, Skinner and Co.

625 tons. Complement: 54–65. Dimensions: $237\frac{1}{2}$ (*o.a.*) × 36 × 4 feet. Guns: **2**—6 inch (*Tarantula*, **1**—6 inch, *Bee*, none), **1**—3 inch AA. (*Bee*, **2**), **10** smaller. Machinery: Triple expansion. Twin screws in tunnels fitted with Yarrow's patent balanced flap. Boilers: Yarrow. Designed H.P.: 2,000 = 14 kts. Fuel: 35 tons coal, 54 tons oil. (*Moth*, 76 tons oil only). On Trials 18 knots was easily obtained.

*Note.*—Messrs. Yarrow & Co., Ltd., were solely responsible for the design of these vessels, which were built under their supervision during the War.

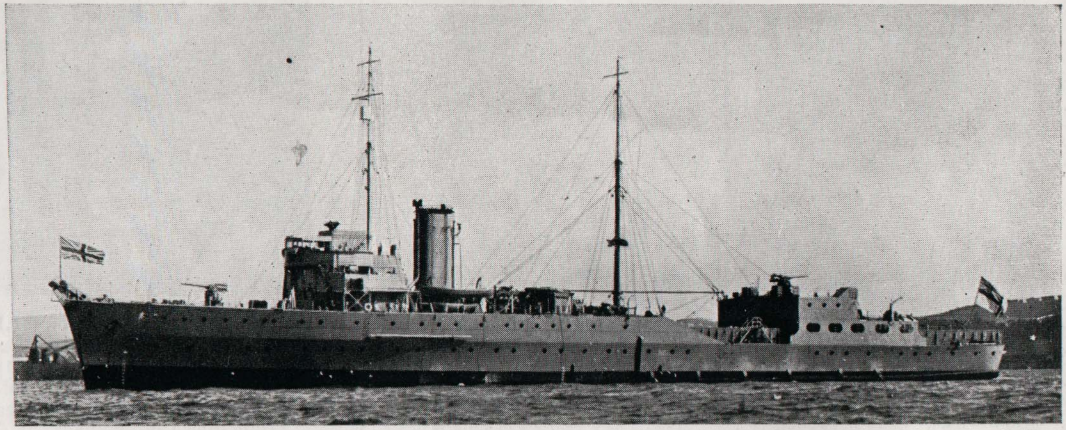


1937, *Fighting Ships.*



1937, *Vicary, Cromer.*

**PROTECTOR** (Aug. 20, 1936). Laid down by Messrs. Yarrow & Co., Ltd., at Scotstoun, Glasgow, August 15, 1935, under 1934 Estimates. Completed end 1936. Displacement: 2,900 tons. Dimensions: 310 (*p.p.*) × 50 × $11\frac{1}{2}$ feet (*mean*). Guns: **1**—4 inch. Machinery: Parsons geared turbines. S.H.P.: 9,000 = 20 kts. Boilers: 2 Admiralty 3-drum type. Oil fuel: 690 tons. Cost, £326,230.



1933

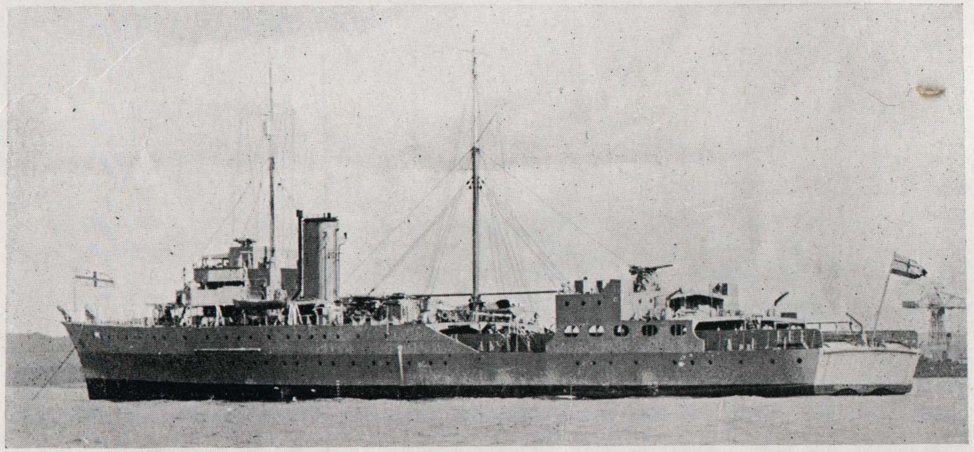
**GUARDIAN** (Chatham Dockyard, Sept. 1, 1932).

Displacement: 2,860 tons. Complement: 150.
Dimensions: 310 × 53 × $12\frac{1}{4}$ feet (*max.*), $11\frac{1}{6}$ feet (*mean*).
Guns: **2**—4 inch AA.
Machinery: Parsons geared turbines by Wallsend Co.
Boilers: 2 Admiralty 3-drum type. H.P.: 6,500 = 18 kts.
Oil Fuel: 720 tons.

*General Notes.*—Designed for Net-laying and Fleet Photography work. The nets, sinkers and buoys are stowed, port and starboard, on the upper deck from just forward of the main-mast under the forecastle deck to the stern. Nets are retrieved by means of the brow forward. The structure aft, placed on the deck spanning the nets, is the photographic cabin.

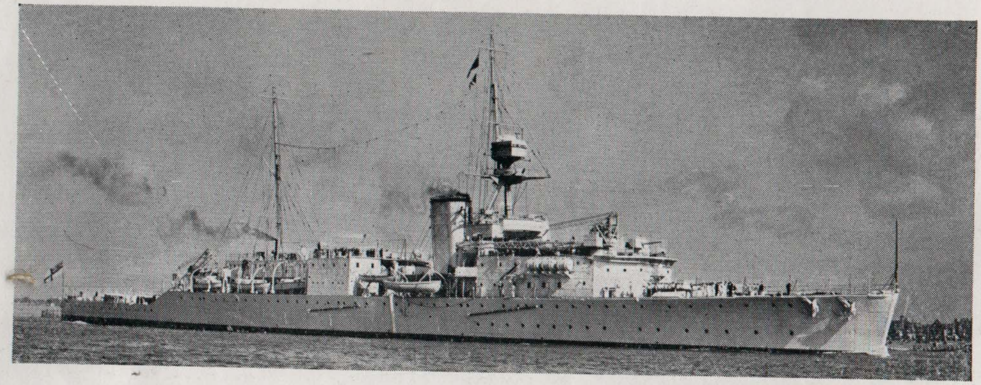
This ship is very beamy in relation to her length, the proportion being 1:6 only. She is by far the biggest net-layer ever built, being intended for instructional purposes and the laying of special barrages to protect the fleet she accompanies. These are intended to be retrieved—a laborious job—and re-laid as requisite.

Laid down October 15, 1931; completed June 13, 1933.

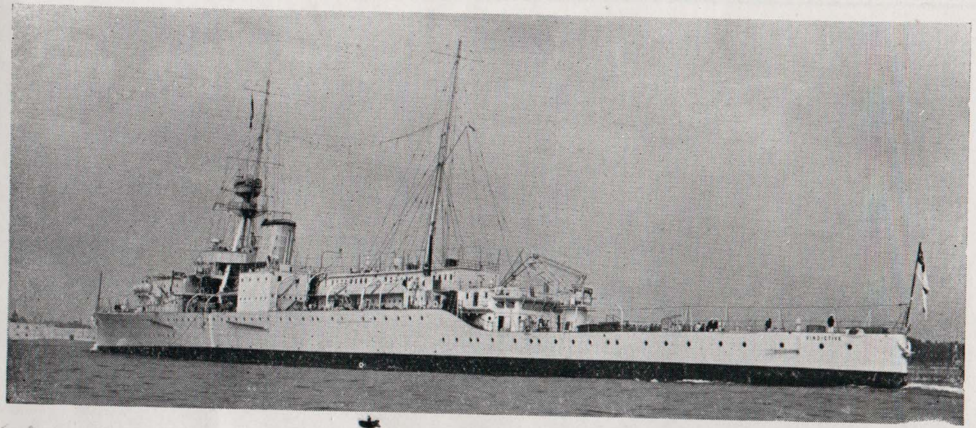


1933

## Cadets' Training Ship.



1937, *Wright & Logan.*

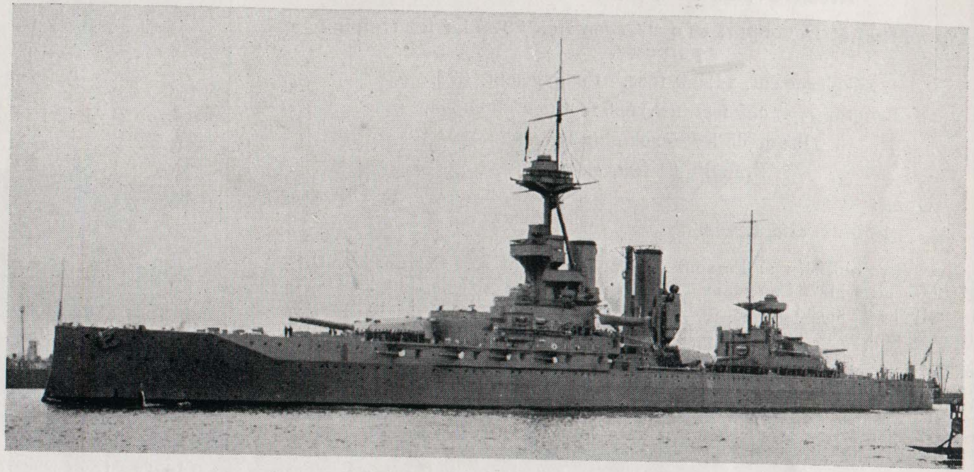


1937, *Wright & Logan.*

**VINDICTIVE** (ex-*Cavendish*) (Harland & Wolff, Jan. 17, 1918). Displacement: 9,996 tons (prior to reconstruction). Dimensions: 565 (*p.p.*), 605 (*o.a.*) × 58 × $20\frac{1}{2}$ feet (*max.*). Armament reduced during reconstruction to convert ship from a cruiser to a training ship. Guns: **2**—4·7 inch, **4**—3 pdr., **1**—2 pdr. pompom. Armour: 3″—$1\frac{1}{2}$″ side, 1″ deck, 3″ C.T. Machinery: Parsons geared turbines. 4 shafts. Boilers: 6 Yarrow (only 4 in use). S.H.P.: 25,000 = 23 kts.

*Notes.*—Built under Emergency War Programme as a cruiser of improved *Birmingham* class, completed as an aircraft carrier and renamed *Vindictive*, 1918. Converted into a cruiser again, 1923–25. Reconstructed as Cadets' training ship, 1936-37, at a cost of £280,000. Normal Complement of cadets is 200.

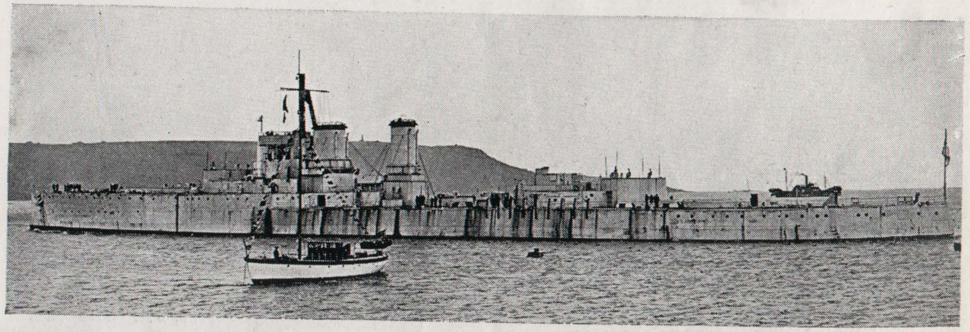
## Gunnery Firing Ship and Boys' Training Ship.



1933 *Photo, Cribb.*

**IRON DUKE** (ex-battleship), (Portsmouth, Oct. 12, 1912). Demilitarised under London Treaty, 1931–32, when B and Y turrets, conning tower, belt armour, and t.t. were removed, and boiler power reduced. Employed as Gunnery T.S. Present displacement (standard), 21,250 tons. Dimensions: 580 (*pp.*) × 90 × 32 feet. Guns retained: **6**—13·5 inch, **12**—6 inch. Speed: 18 kts. Oil fuel only.

## Target Ships.



1933 *Photo, R. Perkins, Esq.*

**CENTURION** (ex-battleship). (Devonport, Nov. 18, 1911). Standard Displacement: 25,500 tons. Dimensions: 555 (*p.p.*) × 89 × 30 feet. Speed (with oil fuel): 16 kts. Complement 250. Employed as wireless controlled target, for attack by guns up to 8-inch calibre.

**SABRE** (Stephen, 1918). Demilitarised destroyer. Displacement: 905 tons. Dimensions: 265 (*p.p.*), 276 (*o.a.*) × $26\frac{3}{4}$ × $10\frac{5}{6}$ feet. Speed (originally), 36 kts. Commissioned as Torpedo Bomber Target, Nov. 1937.

# BRITISH—Training Aircraft Carriers and Depot Ship.

**ARGUS** (2nd Dec., 1917). Late Liner.

Being refitted at Devonport as a "Queen Bee" Tender for training purposes.

Displacement, 14,450 tons. Complement, 373.

Length, (*p.p.*) 535 feet (*w.l.*) 560 feet (*o.a.*) 565 feet.

Beam, 68 feet (excluding bulges).

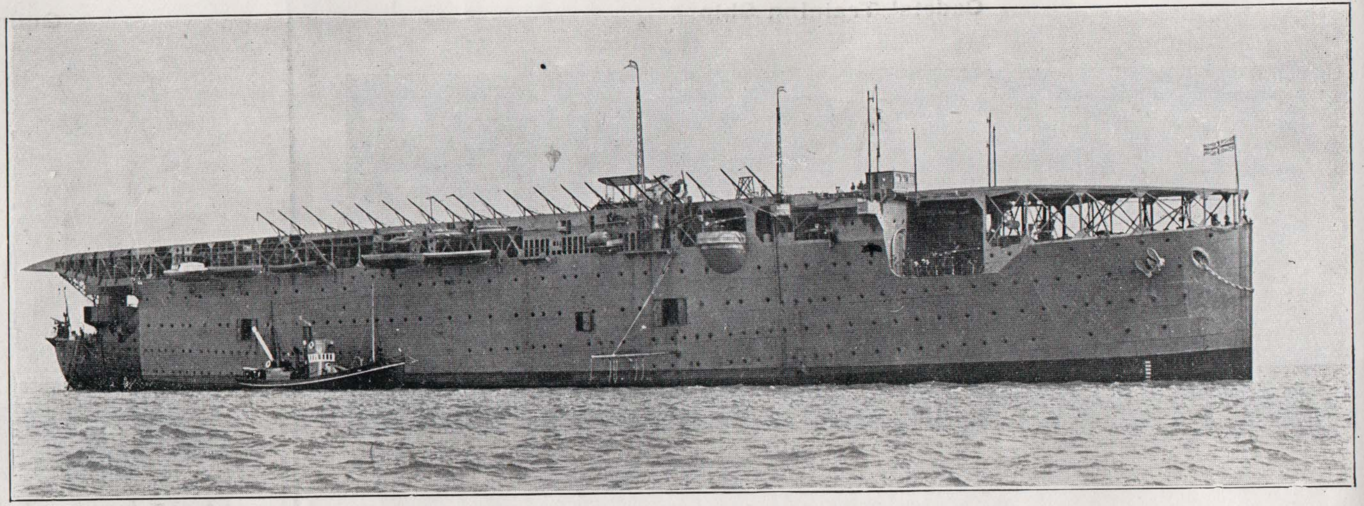
Draught, 21 feet, *mean*.

Guns:

16 M.G. and Lewis.

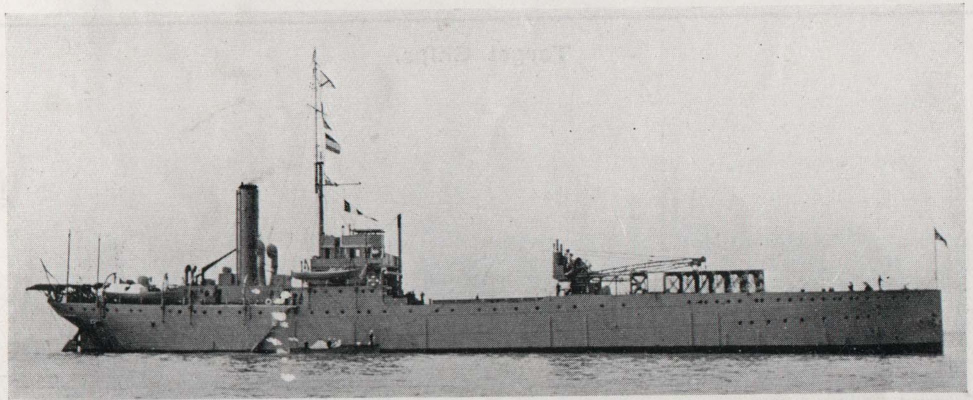
Machinery (by builders): Parsons turbines. 4 shafts. Designed S.H.P. 20,000 = 20·2 kts. Can make 20·75 kts. for short periods, but 20 kts. is usually best speed under ordinary conditions. Boilers: 12 cylindrical (6 D.E. and 6 S.E.), with Howdens forced draught. Fuel: 2000 tons oil.

*General Notes.*—Begun 1914, by Beardmore, for Italian Lloyd Sabaudo Line, as S.S. *Conte Rosso*. All work on her ceased in 1914. She was purchased in 1916 and converted to Aircraft Carrier. Completed September, 1918, at a cost of £1,307,615. Refitted 1925-26, and bulges added, extending from Section 4 to Section 19. Again refitted in 1937 as a "Queen Bee" tender, flight deck being levelled at fore end and widened by 5 feet, tapering to nothing forward.



ARGUS. (Now under refit). See silhouette.

1929, *Photo R. Perkins, Esq.*



(Hein mat gear aft.)

1935, *J. Perkins, Esq.*

**PEGASUS** (ex-*Ark Royal*) (Blyth S.B. Co., 1914, purchased during construction 1914). 6,900 tons. Dimensions: 353½ (*p.p.*), 366 (*o.a.*) × 50⅚ × 17½ feet (*mean*). Guns: 10 M.G. and Lewis. I.H.P.: 3,000 = 11 kts. Machinery: Vertical triple expansion. 1 screw. Boilers: Cylindrical. Oil: 500 tons. Complement: 139. Originally employed as a Seaplane Carrier. Now used in experimental work with aircraft landing rafts and catapults by School of Naval Co-operation.

## Depot and Repair Ships.

AUTHORISED.

**TYNE.** Depot Ship for Destroyers, authorised under 1937 Estimates. No contract placed up to end of Nov., 1937, and no particulars of design released.

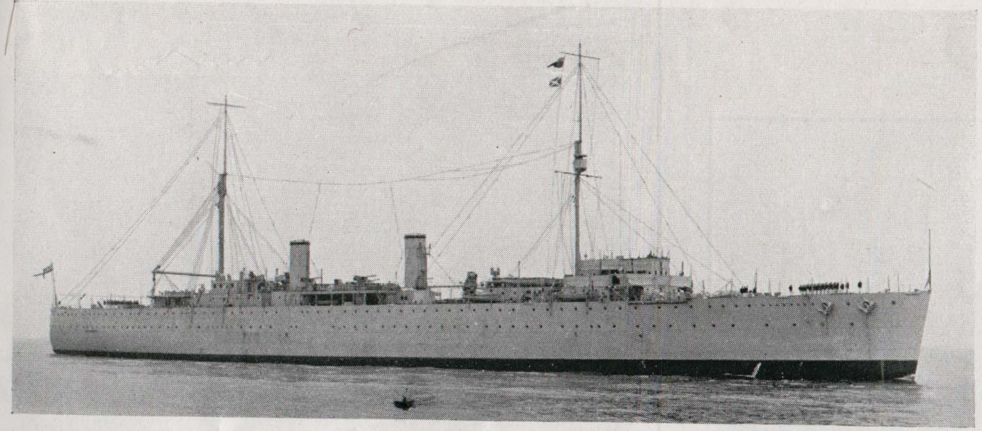
вступ. в стр. 47.
Рихлейм "1700т
для глубокой водолаз. раб
и спас. П/Л.

MAIDSTONE *completing;* FORTH *building.*

**MAIDSTONE** (Oct. 21, 1937), **FORTH** (building). Both built at Clydebank. Displacement: 8,900 tons. Dimensions: 531 feet (*o.a.*) × 73 × 15 feet. Guns: **8**—4·5 inch, **10** smaller. Machinery: Geared turbines. S.H.P.: 7,000 = 17 kts.

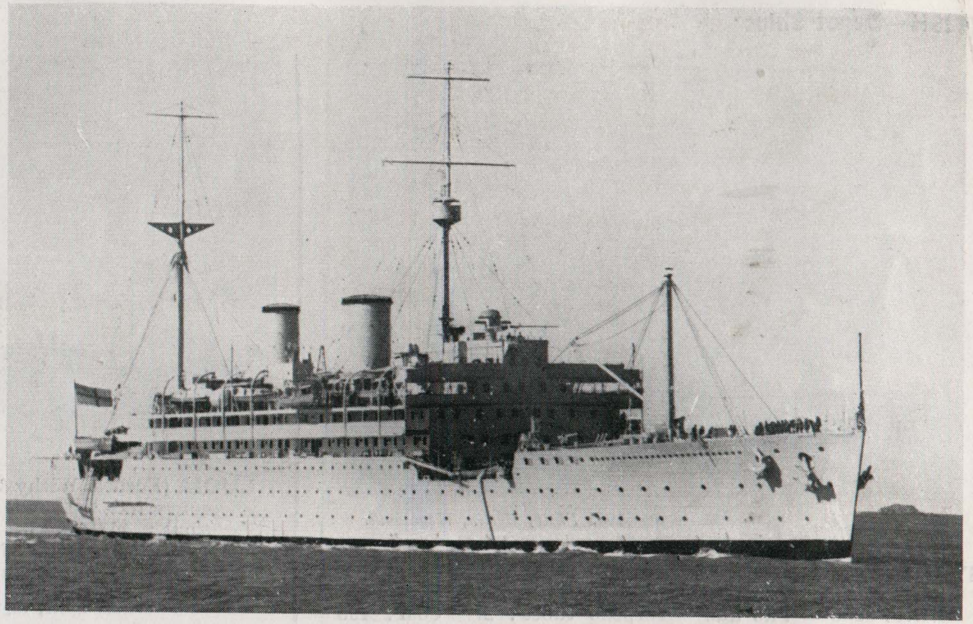
(Depot Ships for Submarines.)

*Notes—Maidstone* ordered Aug. 17, 1936, under 1936 estimates; *Forth* laid down June 30, 1937 under estimates for that year. Armament is notable, being the heaviest yet mounted in a British depot ship.



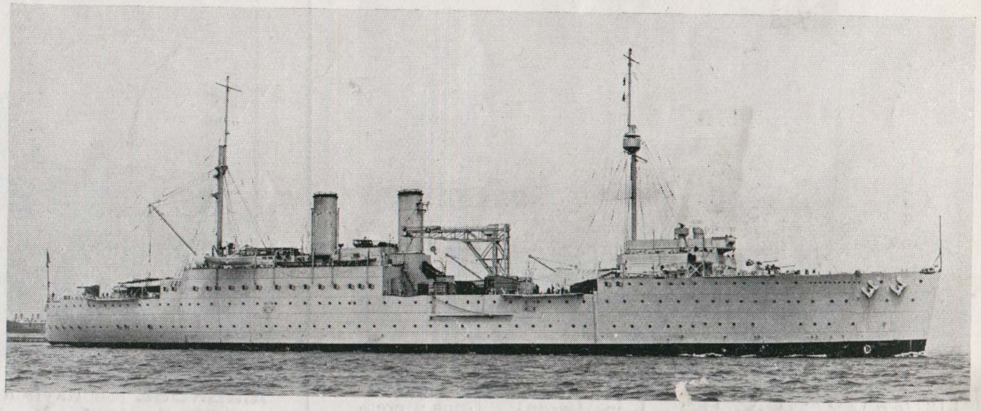
1935, *Wright & Logan.*

**WOOLWICH** (Fairfield, Sept. 20, 1934). Displacement: 8,750 tons. Complement: 350. Dimensions: 575 × 64 × 14$\frac{2}{3}$ feet (*mean* draught). Guns: **4**—4 inch AA., **10** smaller. Machinery: 2 sets single reduction geared turbines. 2 shafts. S.H.P.: 6,500 = 15 kts. Boilers: 4 Admiralty 3-drum type. Oil fuel: 1,170 tons. Authorised under 1932 Estimates. Laid down May 24, 1933, and completed June, 1935. Carries a full equipment of machine tools of the latest type, with a total motor H.P. exceeding 2,000. (Depot ship for Destroyers.)



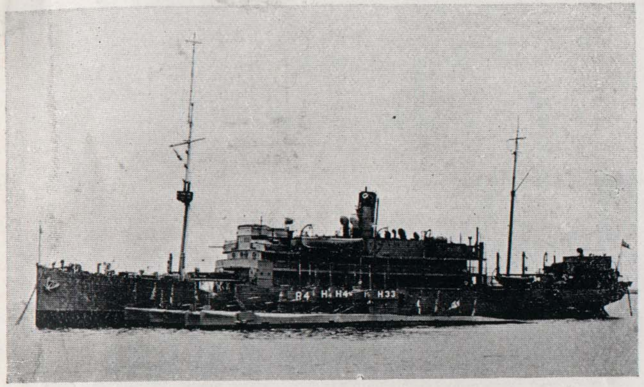
1937, *Lieut. R. L. Jordan, R.N.*

**MEDWAY.** (Vickers, July 19, 1928). Laid down April, 1927, under 1926–27 Estimates, and completed in Sept., 1929. Displacement: 15,000 tons. Complement: 400. Dimensions: 545 (*p.p.*), 580 (*o.a.*) × 85 × 22$\frac{1}{12}$ feet (*max.*). Guns: **2**—4 inch, **4**—4 inch AA., **12** smaller. Has 2-shaft double-acting 2 stroke M.A.N. Diesel engines, total H.P.: 8,000 = 16 kts. Oil: 530 tons own fuel + 1,900 tons for submarines. Equipment includes a Foundry, Machine shop, Plate shop, Smithy, Torpedo shop, Plumber's shop, etc. Designed to mother 18 submarines.



1934 *Photo, Wright & Logan.*

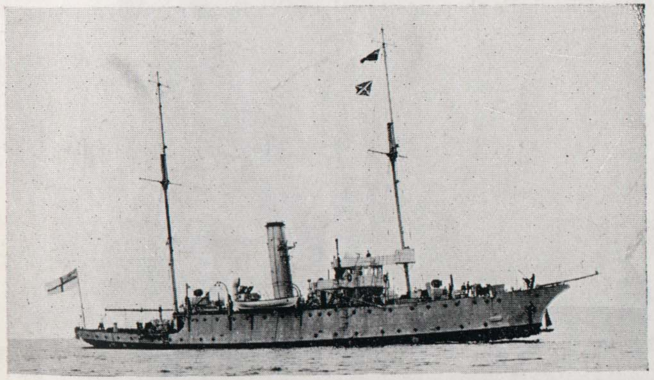
**RESOURCE** (Vickers, Nov. 27, 1928). (Fleet Repair Ship).
Displacement: 12,300 tons. Complement: 450.
Dimensions: 500 (*p.p.*) × 83 × 22$\frac{1}{3}$ feet (*max.*).
Guns: **4**—4 inch AA., **4** smaller.
2 sets Parsons single reduction geared Turbines. H.P.: 7,500 = 15 kts.
4 Admiralty type 3-drum boilers, 235 lbs. pressure. Oil: 1,100 + 350 tons for other vessels.



1931 *Photo, Kestin, Weymouth.*

**TITANIA** (Clyde S.B. Co., 1915, purchased 1915) 5250 tons. Dimensions: 335 (*p.p.*) × 46¼ × 18 feet 5 ins. I.H.P. 3200 = 14.5 kts. Torpedo tubes: 2. Coal: 498 tons. Complement, 249. Cyl. boilers.

(Submarines.)

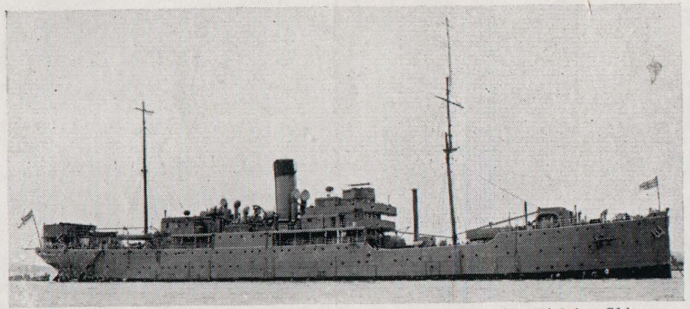


1921 *Photo, Gieves, Ltd.*

**ALECTO** (Laird, 1911). 935 tons. Dimensions: 190 (*p.p.*), 212 (*o.a.*) × 32½ × 11 ft. 1 in. (*mean*). Guns: none. Designed H.P. 1400 = 14 kts. Coal: 180 tons. Complement, 76.

(Submarines.)

(To be discarded shortly).

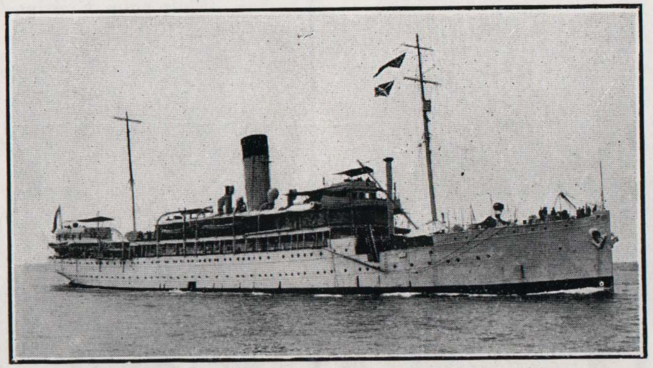


1937, *Fighting Ships.*

**LUCIA** (Furness Withy & Co., 1907, ex German Prize, *Spreewald*,* converted by Clyde S.B. Co., 1916). 5805 tons. Dimensions: 367½ (*o.a.*) × 45 feet 2¼ ins. × 18⅚ feet. Guns: 2—3 pdr. AA. I.H.P. 2750 = 12·7 kts. Coal: 615 tons. Cyl. boilers. Complement, 262.

*Hamburg-Amerika Liner, captured by H.M.S. *Berwick*, September, 1914.

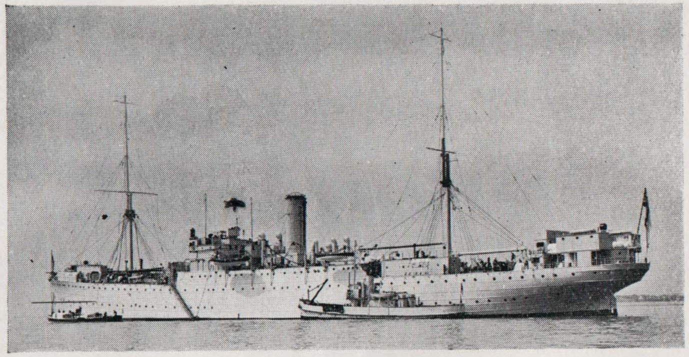
(Submarines.)



AMBROSE. 1928 *Photo, Cribb.*

**AMBROSE** (Sir Raylton Dixon & Co., 1903, converted by Clyde S.B. Co., 1915. Purchased 1915). 6600 tons. Dimensions: 387¾ (*o.a.*) × 47½ × 20¾ feet. I.H.P. 6350 = 14½ kts. Coal: 540 tons. Complement, 238.

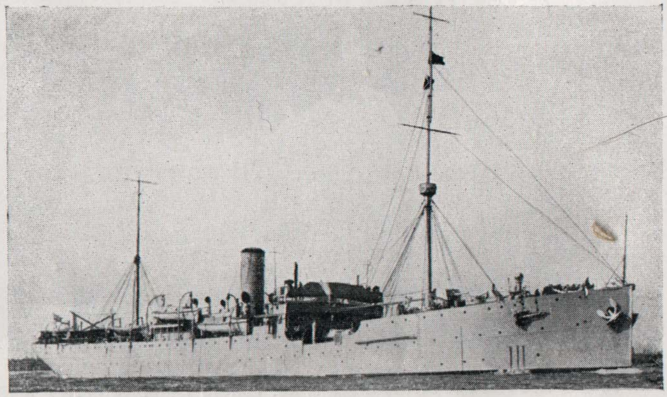
(Accommodation Ship.)



1935, *R. Perkins, Esq.*

**CYCLOPS** (ex-*Indrabarah*, Sir Jas. Laing & Co., 1905). 11,300 tons. Dimensions: 460 (*p.p*), 477 (*o.a.*) × 55 × 21 ft. 2 in. Guns: 2—4 inch (mounted in bows). Machinery: Triple expansion. Designed H.P. 3500 = 13 kts. Coal capacity: 1595 tons. Complement, 266.

(Submarines.)



*Added* 1935

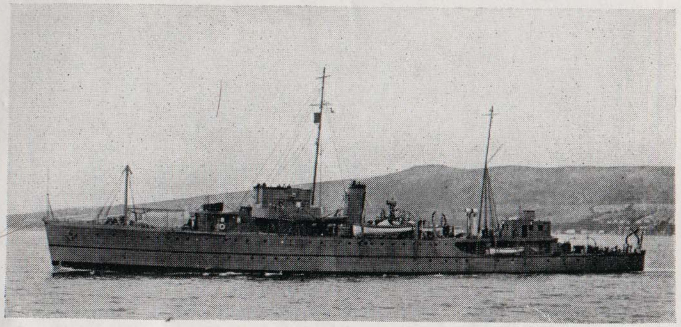
**GREENWICH** (Dobson & Co., completed by Swan Hunter. Purchased 1915). 8100 tons. Dimensions: 390 (*p.p.*), 402 (*o.a.*) × 52 × 19⅔ feet (*max.* draught). Guns: 4—4 inch, 1—3 inch AA. I.H.P. 2500 = 11 kts. Coal: 960 tons. Complement, 244. Cyl. boilers.

(Destroyers.)

## Surveying Vessels.

**GLEANER** (Wm. Gray & Co., June 10, 1937), **FRANKLIN** (Dec. 22, 1937), **JASON** (Oct. 6, 1937), (both by Ailsa Shipbuilding Co.), **SCOTT** (building by Caledon Shipbuilding & Engineering Co. Ltd.). Displacement: 830 tons. Complement: 80. Dimensions: 230 × 33½ × 7 feet (*mean*), 7¼ feet (*max.*). Guns: **1**—3 pdr. Machinery: Parsons geared turbines (by Thornycroft in *Franklin* and *Jason*, by Parsons in *Scott*). H.P.: 2,000 = 27 kts. Boilers: 2 Admiralty 3-drum type.

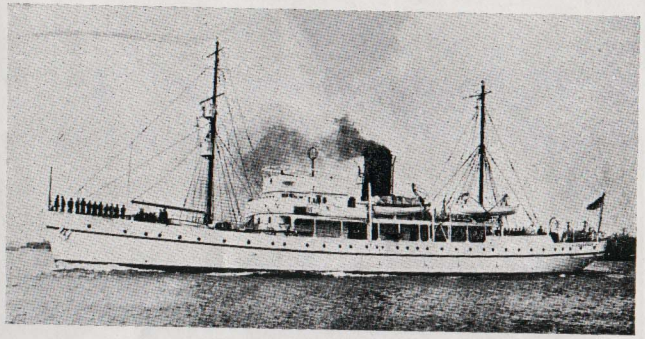
*Note.*—These vessels are of same type as later minesweepers of *Halcyon* class, modified for surveying purposes. *Gleaner* built under 1935 Estimates, *Franklin* and *Jason* under 1936, *Scott*, 1937.



STORK 1936, *courtesy Messrs. Denny (Builders).*

**STORK** (April 21, 1936), **AUCKLAND** (ex-*Heron*) laid down 1937). Both by Wm. Denny & Bros., Dumbarton. **PELICAN.** Building by John I. Thornycroft & Co. Ltd. Displacement: 1,180 tons. Complement: 100. Dimensions: 266 (*p.p*) × 37 × 8⅓ feet (*mean*). Guns: **1**—3 pdr. Machinery: 2 sets Parsons geared turbines. S.H.P.: 3,300 = 18 kts. Boilers: 2 Admiralty 3-drum type. Oil fuel: 370 tons. Cost £159,366.

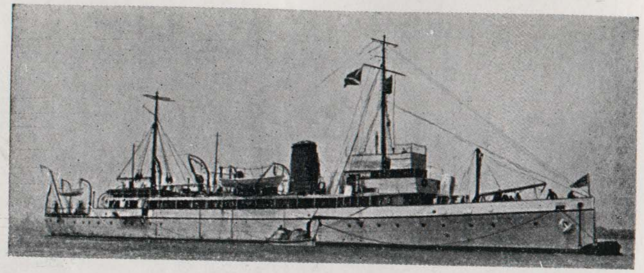
*Note.*—Built under 1934, 1936 and 1937 Estimates, respectively. Are modified editions of *Bittern* type.



1932 *Photo, Wright & Logan.*

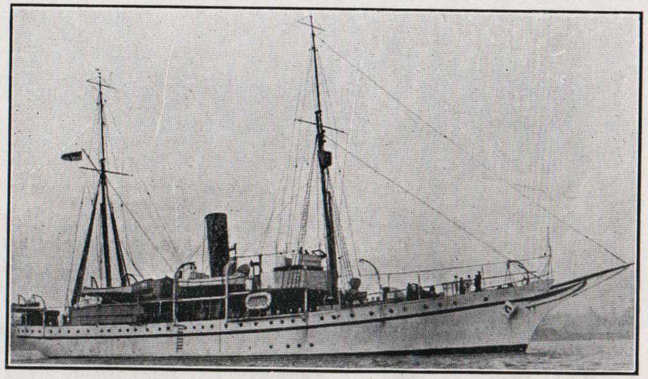
**CHALLENGER** (Chatham, June 1, 1931), built for research work by Fisheries Board, but employed on Surveying duties. Constructed at Chatham D.Y. Displacement: 1,140 tons, (*normal*, 1,250 tons). Complement, 84. Dimensions: 220 (*o.a.*) 200 (*p.p.*) × 36 × 12½ feet (*mean*), 14¼ feet (*max.*) Triple expansion engines, oil fired. H.P.: 1,200 = 12½ kts. 1 shaft. Oil fuel: 340 tons. Has the exceptional radius of 9,000 miles.

## Surveying Vessels—*continued.*



KELLETT (Others have taller foremast.) 1924 *Photo.*

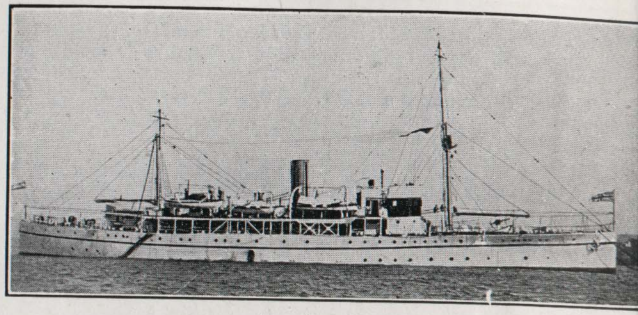
**FITZROY** (ex-*Pinner*, ex-*Portreath*), (1919), **FLINDERS** (ex-*Radley*), (1919), both by Lobnitz & Co. **KELLETT** (ex-*Uppingham*), (1919), by Simons & Co. Converted Twin Screw Minesweepers of "Racecourse Class." 800 tons. Dimensions: 231 (*o.a.*) × 28 ft. 7¼ in. × 7½ feet. Guns: **1**—3 pdr. I.H.P.: 2,200 = 16 kts. Machinery: Vertical triple expansion. 2 screws. Boilers: Babcock or Yarrow. Coal: 185 tons. Complement: 87.



1924 *Photo, Abrahams, Devonport.*

**ENDEAVOUR** (Fairfield, 1912). 1280 tons. Dimensions: 241¼ (*o.a.*) × 34 ft. 2 in. × 11⅔ feet. Guns: **1**—3 pdr., **1** M G. H.P. 1100 = 13 kts. Coal: 220 tons. Complement, 139. Specially built for Hydrographic Duties.

## Surveying Vessels—*continued.*



1924 *Photo, Abrahams, Devonport.*

**HERALD** (ex *Merry Hampton*, 1918), built by Blyth S.B. Co Converted Minesweeper of "24" (Racehorse) class. 1,32 tons. Dimensions: 276½ × 35 × 12 feet. Guns: **1**—3 pdr I.H.P.: 2,500 = 17 kts. Coal: 260 tons. Cylindrical Boilers Complement, 132.

*Note.*—Was converted by Devonport D.Y., 1922–23. Sister ship *Moresb* has been transferred to R. Australian Navy, 1925.

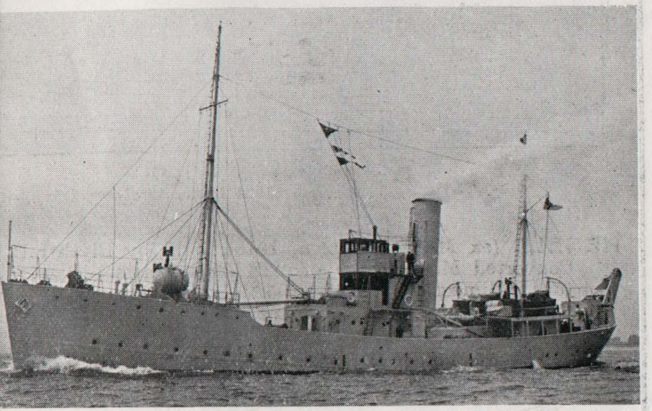
## Trawlers and Boom Working Vessels.

*Authorised.*

**BAYONET** (ex-*Barnehurst*), **FALCONET** (ex-*Barnham*), **MAGNET** (ex *Barnsley*), **MARTINET** (ex-*Barnstone*), **PLANET** (ex-*Barnwell*), **PLANTAGENET** (ex-*Barwood*). Authorised under 1937 estimates. Enlarged and improved editions of *Dunnet*.

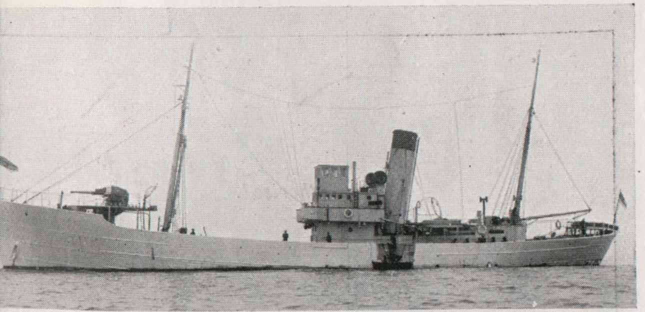
*Building.*

**ASTIFF.** Laid down Jan 27, 1937 by Messrs. Henry Robb, Ltd., for completion in 1938 under 1936 Estimates. Displacement: 490 tons. Dimensins: 150 (*pp.*), 163½ (*o.a.*) × 27 × 8¼ feet. Guns: **1**—4 inch,2 smaller. H.P.: 950 = 13 kts.



1937, *Wright & Logan.*

**ULCAN** (ex-*Mascot*, ex-*Aston Villa*), (Smith's Dock Co. Ltd., 1933). Purchased and converted, 1936. Displacement: 623 tons. Dimensions: 155 (*o.a.*) × 26½ × 12 feet. Reciprocating engines. I.H.P.: 678 = 11·5 kts. 1 cylindrical boiler. Depot Ship for Torpedo Boats.

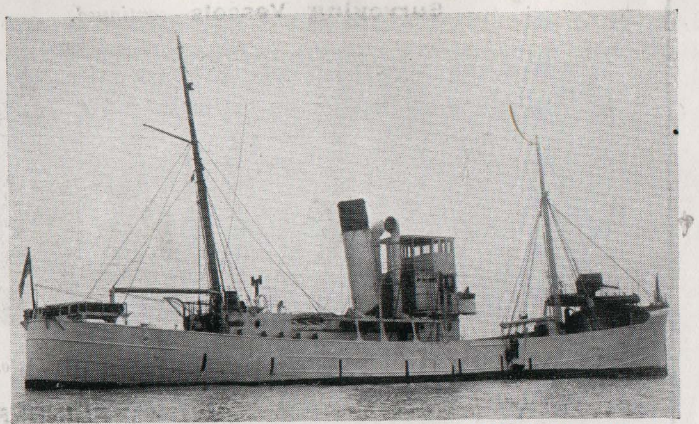


SAPPHIRE. 1936, "*Fighting Ships..*"

*Smith's Dock Co., Ltd.*: **AGATE** (ex-*Mavis Rose*, 1934), **AMETHYST** (ex-*Phyllis Rosalie*, 1934), **SAPPHIRE** (ex-*Mildenhall*, 1935), **TOPAZE** (ex-*Melbourne*, 1935), **TOURMALINE** (ex-*Berkshire*, 1935), **TURQUOISE** (ex-*Warwickshire*, 1935). Length: 157 to 160¼ feet; beam, 26½ feet.

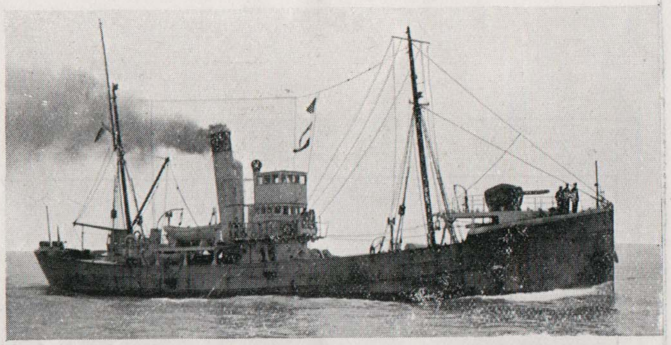
*Cook, Welton & Gemmell*: **PEARL** (ex-*Dervish*, 1934), 154½ × 25½ feet; **JASPER** (ex-*Balthasar*, 1932), 145 × 25 feet.

ll purchased in 1935. Average draught of all, about 12 feet. Guns: **1**—4 inch; also D.C. I.H.P.: 600 = 12 kts. Used for Anti-Submarine training.



RUBY. 1936, "*Fighting Ships.*"

2 *Cochrane & Sons*: **RUBY** (ex-*Cape Bathurst*, 1933), **CORNELIAN** (ex-*Cape Warwick*, 1933). Dimensions: 152 × 25½ × 12 feet. Guns: **1**—4 inch. D.C. carried. I.H.P.: 600 = 12 kts. Purchased 1935, and used for Anti-Submarine training.

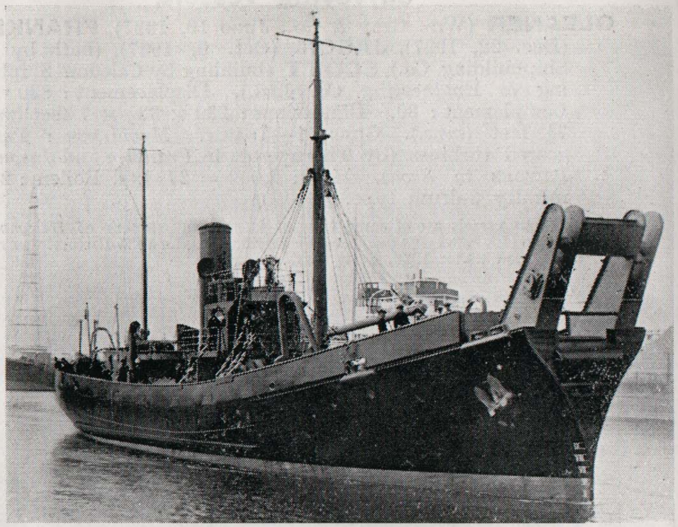


LILAC. 1936, *Wright & Logan.*

7 *Cochrane & Sons*: **LILAC** (ex-*Beachflower*, 1930), **SYCAMORE** (ex-*Lord Beaverbrook*, 1930). Both 150½ × 25½ × 12 feet. **MAGNOLIA** (ex-*Lord Brentford*, 1930). 150¼ × 24½ × 12 feet. **CYPRESS** (ex-*Cape Finisterre*, 1930), **HAWTHORN** (ex-*Cape Guardafui*, 1930), **SYRINGA** (ex-*Cape Kanin*, 1930), **WILLOW** (ex-*Cape Spartivento*, 1930). All four of these, 140 × 24½ × 12 feet.

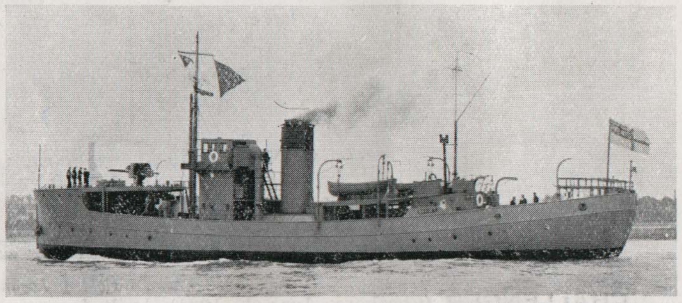
3 *Cook, Welton & Gemmell*: **CEDAR** (ex-*Arab*, 1933). 154½ × 25½ × 12 feet. **HOLLY** (ex-*Kingston Coral*, 1930), **LAUREL** (ex-*Kingston Cyanite*, 1930). Both 140¼ × 24½ × 11½ feet.

In all: Guns: **1**—4 inch. D.C. carried. I.H.P.: 600 = 12 kts. All purchased 1935, and used for Minesweeping training. Displacements vary from 550 to 650 tons.



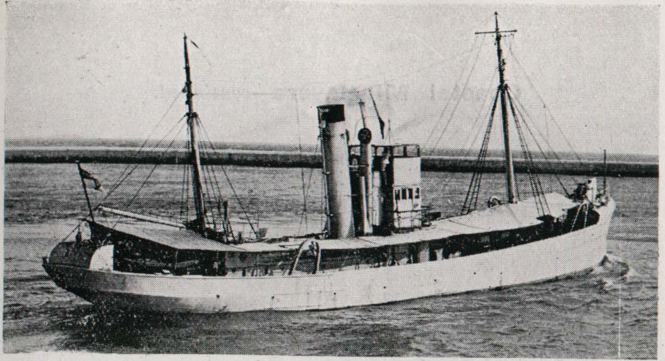
1937, *courtesy D. Cochrane, Esq.*

**DUNNET.** (Lytham S. & E. Co., Ltd., August 5, 1936). Displacement: 415 tons Complement, 15. Dimensions: 125 (*pp.*), 134¼ (*o.a.*) × 26½ × 9 feet (*max.*). Guns: **1**—3 inch. Reciprocating engines and cylindrical boiler. I.H.P.: 350 = 10 kts. Fuel: 80 tons coal. (Designed and built for service as Boom Working Vessel).



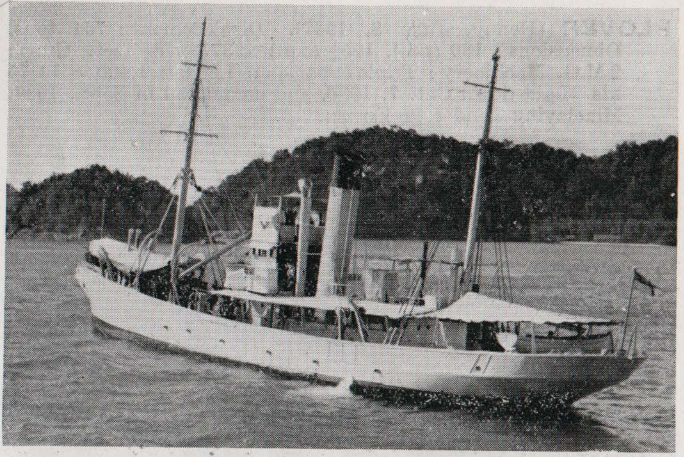
1937, "*Fighting Ships.*"

**BASSET.** (Henry Robb, Ltd., Leith, Sept. 28, 1935). Displacement: 480 tons (full load, 696 tons). Complement, 15. Dimensions: 150 (*pp.*), 160½ (*o.a.*) × 27½ × 10½ feet. Guns: **1**—4 inch. Reciprocating engines and cylindrical boiler. I.H.P.: 850 = 12 kts. Fuel: 180 tons coal.



BARNET. 1934, *Grand Studio, Malta.*

**BARNET** (ex-*Earl Haig*). (Cochrane & Sons, Selby, 1919.) Purchased and converted, 1934. Displacement: 583 tons. Complement: 15. Dimensions: 138⅓ (*o.a.*) × 23¾ × 11¼ feet. Guns: 1—3 inch. Reciprocating engines and cylindrical boiler. I.H.P.: 600 = 11 kts. Fuel: 175 tons coal. Boom working vessel at Hongkong.



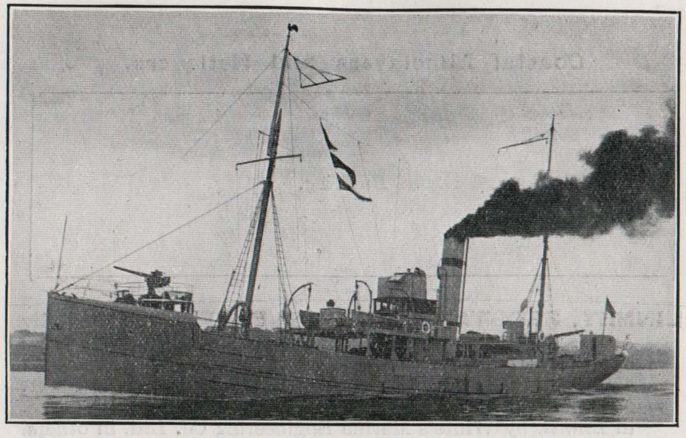
1937.

**FASTNET** (ex-*Frobisher*). (Goole S.B. and Repairing Co., 1919). Purchased and converted, 1933. Displacement: 639 tons. Complement: 15. Dimensions: 1[illegible]¾ (*o.a.*) × 23¾ × 12 feet. Guns: 1—3 inch. Reciprocating engines and cylindrical boiler. I.H.P.: 600 = 11 kts. Fuel: 175 tons coal. Boom Working Vessel at Singapore.

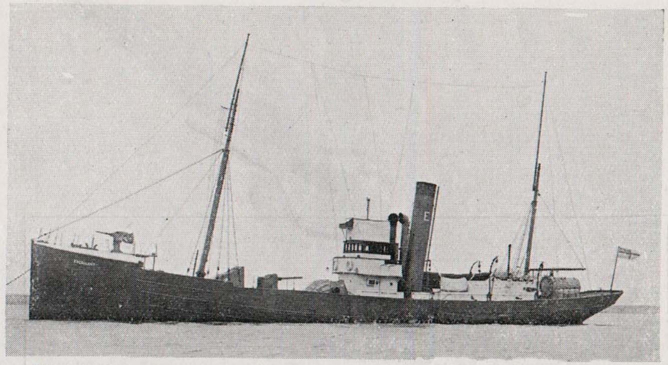
*Photo wanted*

Appearance believed to be similar to *Wakakura*, in New Zealand section.

**CORONET** (ex-*Robert Cloughton*) (1917). "Castle" type, designed by Smiths Dock Co., Ltd., and built by Bow, McLachlan & Co., Ltd. Displacement: 547 tons. Dimensions: 125 (*p.p.*) × 22½ × 12½ feet. I.H.P. 480 = 10·5 kts. Coal: 164 tons. Boom working vessel at Rosyth.



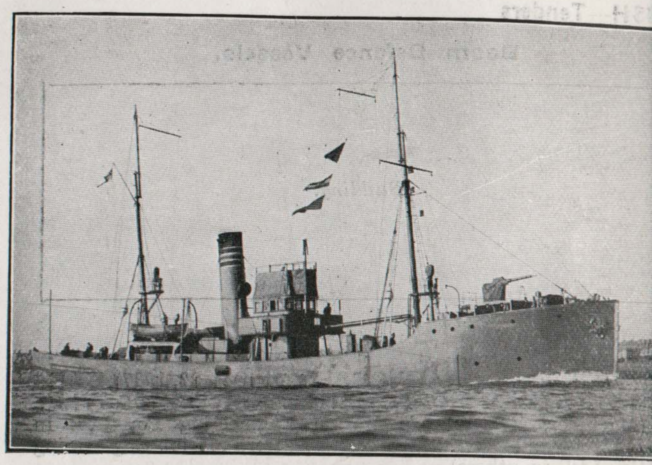
CHERWELL. (Details of each vary slightly).



EXCELLENT. 1935, *R. Perkins, Esq.*

| | |
|---|---|
| **Blackwater** | (ex-*William Inwood*). |
| ***Boyne** | (ex-*William Jones*). |
| ***Cherwell** | (ex-*James Jones*). |
| ***Colne** | (ex-*Isaac Chant*). |
| ***Doon** | (ex-*Fraser Evans*). |
| **Eden** | (ex-*Immortelle*, ex-*Eden*, ex-*Thomas Johns*). |
| **Excellent** | (ex-*Nith*, ex-*Andrew Jewer*). |
| ***Foyle** | (ex-*Sonneblom*, ex-*Foyle*, ex-*John Edmund*). |
| **James Ludford.** | |
| **Moy** | (ex-*Alexander Hills*). |
| **Ouse** | (ex-*Andrew King*). |
| **Pembroke** | (ex-*Stour*, ex-*Daniel Fearall*.) |

All belong to "Mersey" type (designed by Messrs. Cochrane & Sons, Ltd., Selby, 1917–18). All built by Messrs. Cochrane except *Colne* and *James Ludford*, by Lobnitz. Displacement: 546 to 560 tons. Dimensions: 138⅓ (*p.p.*) × 22¾ × 13½ feet. Triple expansion engines. 1 boiler. I.H.P.: 600 = 11 kts. Coal: 204 tons. *Moy*, *Ouse*, are employed on Fleet Target Service. *Blackwater* and *James Ludford* are used for minesweeping instruction. Those marked * are rated as "Fishery Protection Gunboats," have black topped funnels, and carry 1—3 inch AA. *Pembroke* has 2—3 pdr. *Eden* to be disposed of in 1938.



"DEE" TYPE. 1926 *Photo, Gieves Ltd., Portsmouth.*

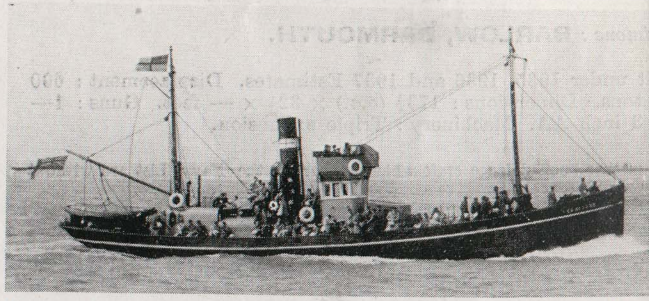
**DEE** (ex-*T* 16, ex-*Battleaxe*). **KENNET** (ex-*T* 17, ex-*Iceax*

**GARRY** (ex-*T* 13, ex-*Goldaxe*). **LIFFEY** (ex-*T* 14, ex-*Stoneax*

Ex-Russian Trawlers, designed and built by Smiths Dock C Ltd., 1916. Displacement: 486 tons. Dimensions: 130 (*p.* × 23½ × 13½ feet. I.H.P.: 525 = 10 5 kts. Coal: 140 tor

*Note.*—All four are used for training R.N. Reservists in minesweeping, thou still classed as Fishery Protection Gunboats.

## 24 Drifters.



SEABREEZE. 1937, "*Fighting Ships*.'

(All built of steel except those marked with an asterisk, which are believed to wood. Those marked † are on Harbour Service List).

***Cascade*, *Cloud*, *Cold Snap*, *Crescent Moon*, **Ebbtide*** (ex-*C.* ***Eddy*, **Fumarole*, †*Glitter*, *Halo*, *Harmattan*, *Horizon*, *In*** ***Summer*, *Landfall*, *Leeward*, *Lunar Bow*, *Mist*, *Noont*** †***Onyx*** (ex-*C.D. 82*), ***Seabreeze*, *Sheen*, *Shower*, *Sundown*, *Sun*** ***Whirlpool*.**

Displacement: 199 tons (except ex-*C.D.* type, 150 tons Dimensions: 87 × 19¾ × 9½ feet. I.H.P. 270 = 9 kt Guns: Usually 1—6 pdr. or 3 pdr. (Not mounted in pea time). Coal: 31-39 tons.

## Boom Defence Vessels.

*Building.*

(Bar Class—17 ships).

*h D.D. & S.B. Co.* : **BARBARIAN** (Oct. 22, 1937), **BAR-ETTE, BARBICAN, BARBROOK, BARCASTLE,** Machinery by White's Marine Engineering Co. Ltd. in *arbrook* and *Barcastle*, by North Eastern Marine Engineering o. Ltd. in others).

*l, Russell & Co. (Aberdeen)* : **BARRAGE** (Dec. 2, 1937), **ARRANCA,**

*les Hill & Co. (Bristol)* : **BARRICADE,** (ex-*Ebgate*), **BAR-IER** (ex-*Bargate*).

*le S.B. & Repair Co.* : **BARCOMBE, BARCROFT.** achinery by Amos & Smith, Ltd.

*n Lewis & Sons (Aberdeen)* : **BARFAIR, BARFIELD.**

*nitz* : **BARLANE, BARLIGHT.**

*ons* : **BARLOW, BARMOUTH.**

under 1935, 1936 and 1937 Estimates. Displacement : 690 ons. Dimensions : 173$\frac{3}{4}$ (*o.a.*) × 32$\frac{1}{6}$ × — feet. Guns : 1— inch AA. Machinery : Triple expansion.

Other boon defence craft which appear in the Navy List are without tive power:

## Coastal Minelayers and Netlayers.

*Building.*

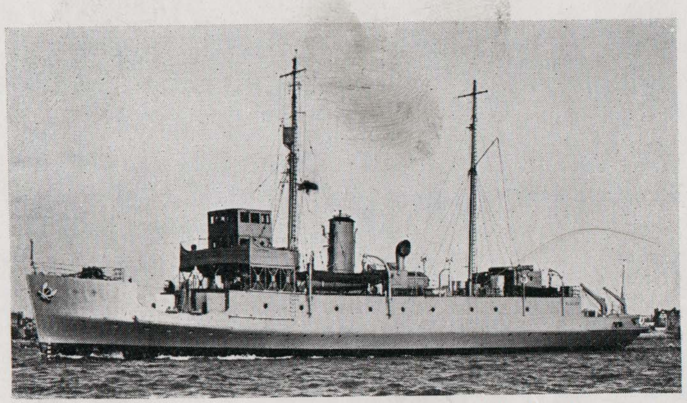
**LINNET, REDSTART, RINGDOVE.** First building by Ardrossan Dockyard Co. Ltd. under 1936 Estimates, others by Henry Robb Ltd. under 1937 Estimates. Displacement : 498 tons. Dimensions : 145 (*pp.*), 163$\frac{3}{4}$ (*o.a.*) × 27$\frac{1}{6}$ × 8 feet. No guns. Machinery : Triple expansion, by Ferguson Bros. in *Linnet*, by White's Marine Engineering Co. Ltd. in others. I.H.P. : 400 = 10·5 kts. First two Minelaying Tenders to *Vernon*, but *Ringdove* will go to China Station.

[illegible]

*Building.*

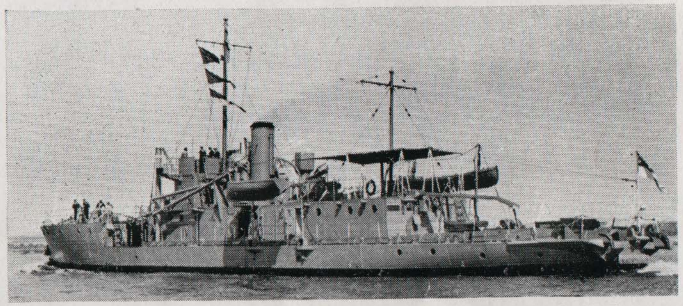
**LASSOO.** Laid down 1937 by Messrs. Thornycroft under 1936 Estimates. Displacement : 903 tons. Dimensions : 180 (*pp.*), 205 (*o.a.*) × 35$\frac{1}{6}$ × 9$\frac{2}{3}$ feet. No guns. Machinery : Triple expansion. I.H.P. : 1,100 = 13 kts. To be Tender to Anti-Submarine School, Portland.

## Coastal Minelayers—*continued.*



1937, *Wright & Logan*

**PLOVER** (Denny, June 8, 1937). Displacement : 764 tons. Dimensions : 180 (*pp.*), 195$\frac{1}{4}$ (*o.a.*) × 37$\frac{1}{2}$ × 8$\frac{1}{6}$ feet. Guns : 2 M.G. Machinery : Triple expansion. I.H.P. : 1,400 = 14·75 kts. Laid down Oct. 7, 1936, and completed in Sept., 1937. Minelaying Tender to *Vernon*.



MINERVA. 1937, *Wright & Logan.*

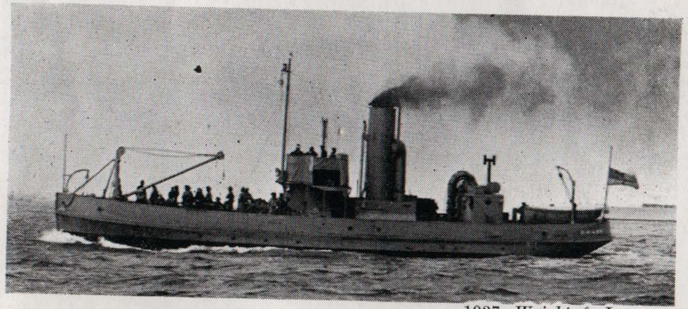
**MEDUSA** (ex-M 29), } (Workman Clark.)
**MELPOMENE** (ex-M 31), }
**MINERVA** (ex-M 33), (Harland & Wolff).

Launched and completed 1915. 535 tons. Complement : 52. Dimensions : 177 (*o.a.*) × 31 × 6$\frac{3}{4}$ feet. Carry 52 mines. Machinery : Triple expansion. 2 shafts. Boilers : Yarrow. Oil fuel : 45 tons. H.P. : 400 = 10 kts.

## Tenders.

*Photo wanted.*

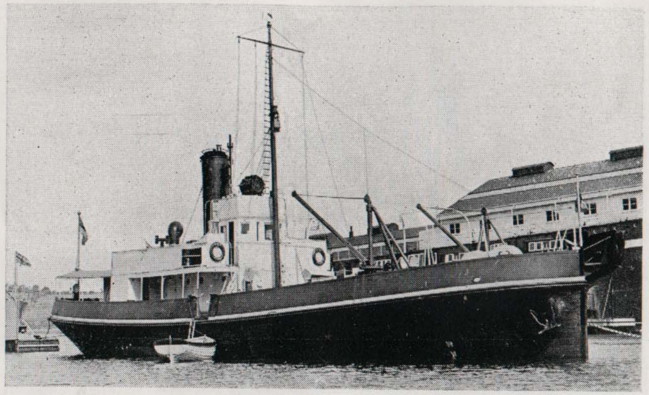
**BLOODHOUND** (1937). 68 ft. Tender to *Vernon*, used for torpedo practice. Speed: 25 kts. No further particulars.



1937, *Wright & Logan.*

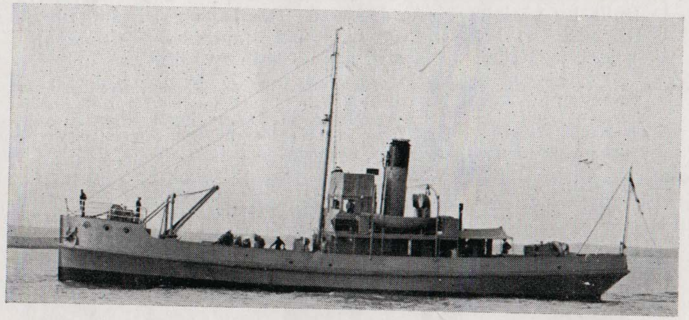
**DWARF.** (1936). Built by Philip & Son, Ltd., Dartmouth. Displacement: 172 tons. Dimensions: $83\frac{1}{2}$ (*pp.*), 91 (*o.a.*) × 19 × $6\frac{1}{2}$ feet (*mean*), 7 feet (*max.*). No guns. 2 sets reciprocating engines and 1 cylindrical boiler. I.H.P.: 350 = 9·25 kts. Fuel: 16 tons coal. Tender to Submarine Depôt, Portsmouth.

## Tenders—*continued.*



Redwing.

1934 *Photo, R. Perkins, Esq.*

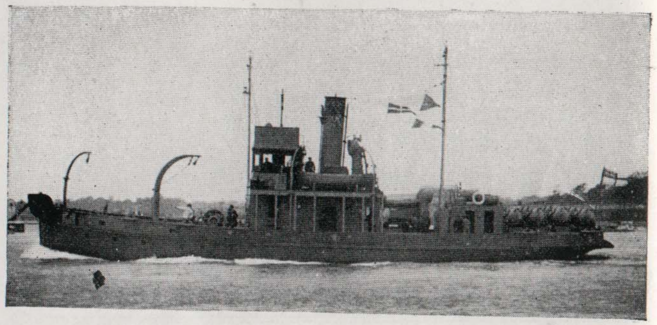


Elfin.

1935, *R. Perkins, Esq.*

**REDWING** (Oct. 19, 1933), **ELFIN** (Nov. 20, 1933). Both built by J. Samuel White & Co., Ltd., Cowes. Displacement: 254 and 249 tons respectively. Complement: 12. Dimensions: *Redwing*, 112 (*o.a.*) × 25 × $6\frac{2}{3}$ feet; *Elfin*, 108 (*o.a.*) × 25 × $6\frac{1}{2}$ feet. No guns. 2 sets reciprocating engines and 1 cylindrical boiler. I.H.P.: 250 = 9·5 kts. Tenders to Torpedo School, Devonport, and Submarine Depot, Portland, respectively.

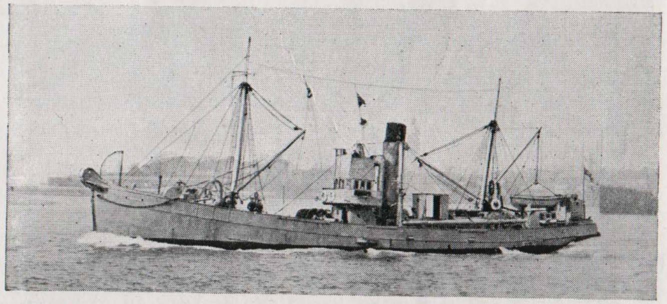
## Tenders—*continued.*



Nightingale.

1931 *Photo, Cribb.*

**NIGHTINGALE** (Sept. 30, 1931), **SKYLARK** (Nov. 15, 1932). Both built at Portsmouth. Displacement: 298 and 302 tons, respectively. Complement: 15. Dimensions: *Nightingale*, 110 (*o.a.*) × $24\frac{1}{2}$ × $7\frac{1}{2}$ feet; *Skylark*, $106\frac{1}{3}$ (*o.a.*) × $24\frac{1}{2}$ × $7\frac{1}{2}$ feet. No guns. 2 sets reciprocating engines and 1 cylindrical boiler. I.H.P.: 400 = 10 kts. Fuel: 15 tons coal. Mining tenders to *Vernon*.



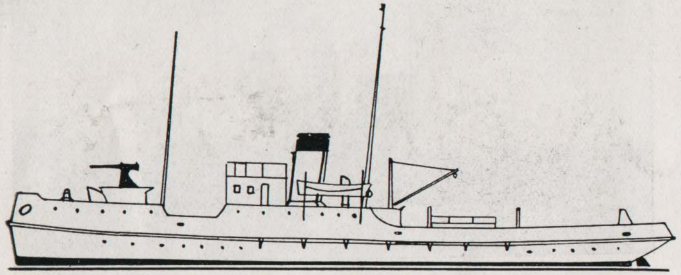
Vernon.

*Added* 1935, *R. Perkins, Esq.*

**VERNON,** (ex-*Strathcoe.*) (Hall, Russell, 1916, purchased). 436 tons. $117\frac{2}{3}$ (*o.a.*) × 22 × 14 ft. 10 in. *max.* draught. No guns. Carries 24 mines. I.H.P. 430 = *about* 10 kts. Coal: 110 tons. Complement: 15.

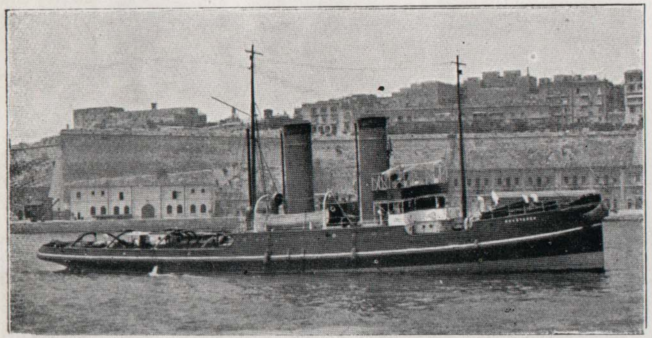
## 23 Fleet Tugs.

**WAVE.** Building under 1937 Estimates.



**BRIGAND** (July 8, 1937), **BUCCANEER** (Sept. 7, 1937), **BANDIT** (building). Built by Fleming & Ferguson, Paisley, under 1936 and 1937 Estimates. Displacement: 840 tons. Dimensions: 165 (*pp.*), 174 (*o.a.*) × 33½ × 10¾ feet. Guns: 1—3 inch AA. Triple expansion engines. 2 shafts. Designed H.P.: 3,000 = 16 kts.

*Notes.*—Fitted for salvage work, and have towing winch for work with battle practice targets.



ROYSTERER. 1929 *Photo, N. T. Tangye, Esq.*

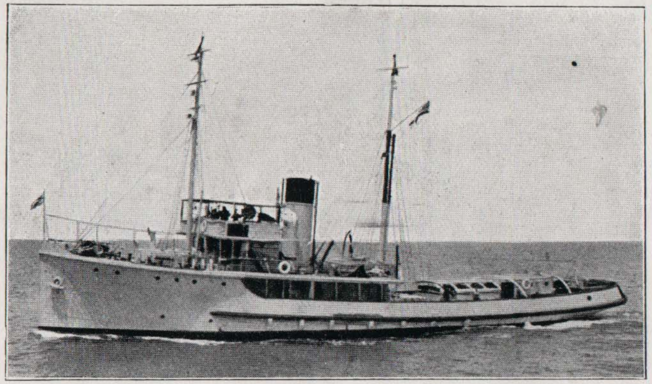
(*Resolve, Retort,* no Fx. deck).

### 5 Rollcall Type.

**RESOLVE, RESPOND** (both by Ayrshire D.Y. Co.). **RETORT** (Day, Summers & Co.), **ROYSTERER** (Thornycroft). **ROLLICKER** (Ferguson Bros.). Built 1918–19. Displacement: 1,370 tons. Dimensions: 175 × 34 × 17, (*maximum* draught). 2 screws. I.H.P.: 2,400 = 14 kts.

*Notes.*—All on Harbour Service List.
*Rollicker* was transferred to Nigerian Government, but was reacquired by Admiralty in March, 1934.

## Fleet Tugs—*continued.*



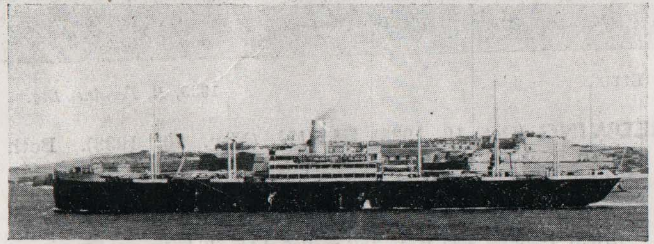
St. Issey. 1929 *Photo, N. T. Tangye, Esq.*

### 14 "Rescue" Type (Saint Class).

**ST. ABBS, ST. BLAZEY, ST. BREOCK, ST. CLEARS, ST. CYRUS, ST. DAY, ST. DOGMAEL. ST. FAGAN, ST. ISSEY, ST. JUST, ST. MARTIN, ST. MELLONS, ST. MONANCE, ST. OMAR.** Built by various yards, 1918–19. Displacement: 820 tons. Dimensions: 135½ × 29 × 14½ feet (*maximum* draught), 1 screw. I.H.P. 1,250=12 kts. Coal: 240 tons.

*Note.—St. Cyrus, St. Fagan, St. Issey, St. Just, St. Martin,* employed for Target Towing, others on Harbour Service List, with exception of *St. Breock.* 2 tugs of this type, *Toia* (ex-*St. Boniface*) and *Ocean Eagle* (ex-*St. Arrans*), transferred to New Zealand and Canadian Governments, respectively. Others will be found in Brazilian, Spanish and Turkish Navies.

## Fleet Supply Ship.

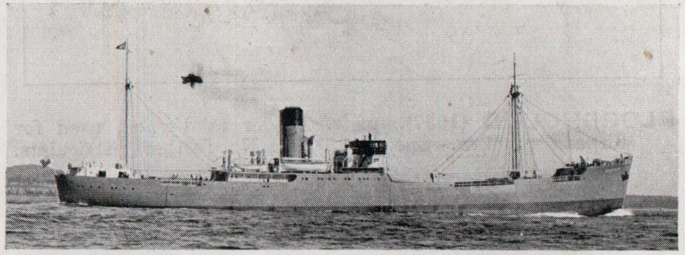


1934 *Official.*

**RELIANT** (ex-*London Importer*). (Purchased, March, 1933.) Built by Furness Shipbuilding Co., 1923. Displacement: 17,000 tons. Gross tonnage: 7,938. Dimensions: 450½ (*p.p.*), 471½ (*o.a.*) × 58 × 30 feet (*max.*). 2 Brown-Curtis geared turbines. S.H.P.: 5,000 = 14 kts. 4 cylindrical boilers, 190 lbs. working pressure. Oil fuel: 2,170 tons.

## Store Carriers.

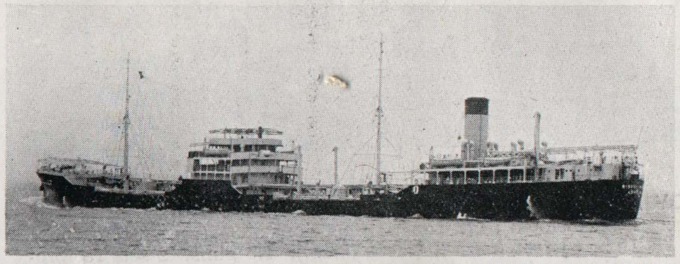
2 new Store Carriers of 1,100 tons deadweight were ordered from Grangemouth Dockyard Co. Ltd. in July, 1937. Dimensions: 210 × 35 × 13½ feet (*mean*). Machinery: Atlas Polar Diesel. 1 shaft. B.H.P. 960. Fuel: 60 tons.



Bacchus. 1936, *courtesy Builders.*

**BACCHUS.** (Caledon Shipbuilding & Engineering Co., Ltd., July 15, 1936). Displacement: 5,150 tons *standard*, 5,790 tons *full load.* Complement, 44. Dimensions: 320 (*pp.*), 337⅚ (*o.a.*) × 49 × 18 feet (*max.* draught). No guns. Machinery: Triple expansion. I.H.P.: 2,000 = 12 kts. 3 cylindrical boilers. Oil fuel: 643 tons. Equipped with distilling plant. Deadweight capacity: 3,300 tons.

## Oilers.



Bishopdale. 1937, *courtesy Builders.*

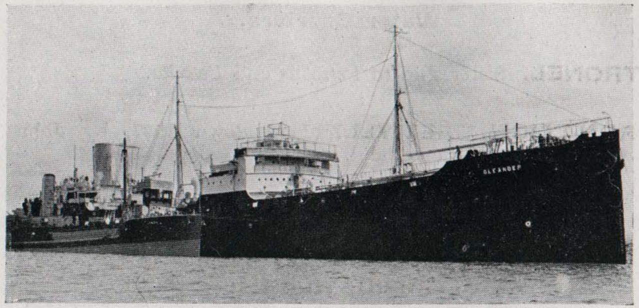
2 *Swan Hunter*: **ABBEYDALE** (Dec. 28, 1936), **ARNDALE** (Aug. 5, 1937).

1 *Cammell Laird*: **ALDERSDALE** (July 7, 1937).

1 *Lithgows*: **BISHOPDALE** (March 31, 1937).

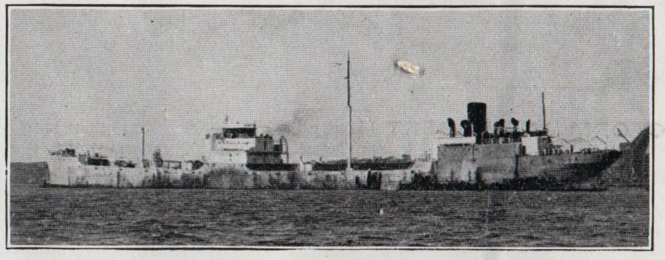
2 *Harland & Wolff* (Govan): **BOARDALE** (April 22, 1937), **BROOMDALE** (Sept. 2, 1937).

Displacement: 17,200 tons. Complement: 40. Dimensions: 464¼ (*pp.*), 481½ (*o.a.*) × 62 × 27½ feet (*mean*). Machinery: Doxford Diesels in first 3, Burmeister & Wain in others. B.H.P.: 4,000 = 11·5 kts. Deadweight capacity: 11,650 tons. Own fuel: 850 tons.



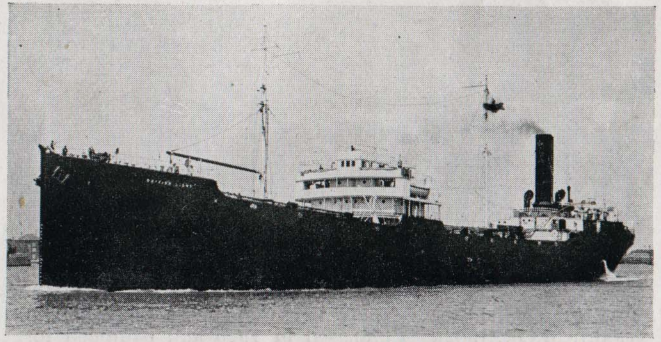
1930 *Photo, R. Perkins, Esq.*

**OLEANDER** (Pembroke D.Y., 1922), **OLNA** (Devonport D.Y., 1921). Displacement: 15,350 and 15,220 tons. Dimensions: 430 × 57 × $26\frac{1}{4}$ feet. Deadweight capacity: 10,000 tons. Triple expansion engines and cylindrical boilers. I.H.P.: 3,250 = 11 kts.



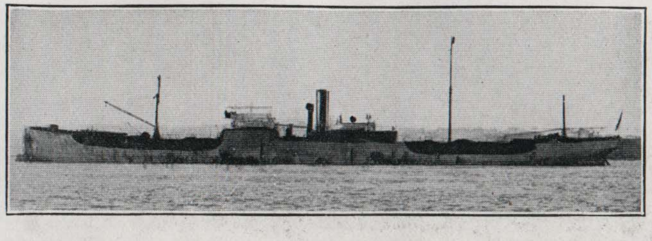
OLCADES. *Photo, Abrahams, Devonport (added* 1927).

**OLCADES** (ex-*British Beacon*), **OLIGARCH** (ex-*British Lantern*), (both Workman Clark, 1918), **OLYNTHUS** (ex-*British Star*), (Swan Hunter, 1917). Displacement: 15,030 tons. Dimensions: 430 × 57 × $26\frac{1}{4}$ feet. Deadweight capacity: 9,000 tons. Triple expansion engines and cylindrical boilers. I.H.P.: 3,200 = 11 kts.



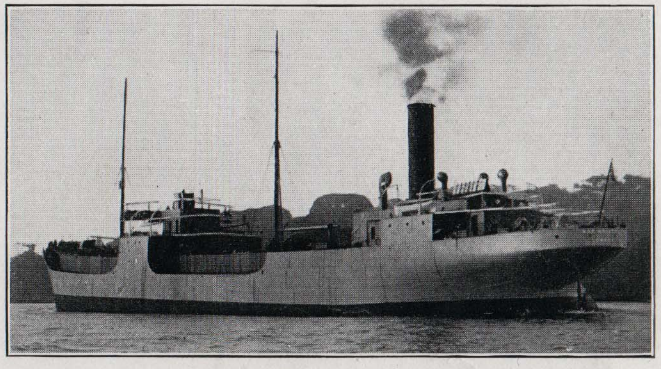
*Added* 1935, *Wright & Logan.*

**OLWEN** (ex-*British Light*), (Palmers, 1917). Displacement: 13,690 tons. Dimensions: $419\frac{1}{2}$ × $54\frac{1}{4}$ × 26 feet. Deadweight capacity: 8,000 tons. Triple expansion engines and cylindrical boilers. I.H.P.: 3,150 = 10 kts.



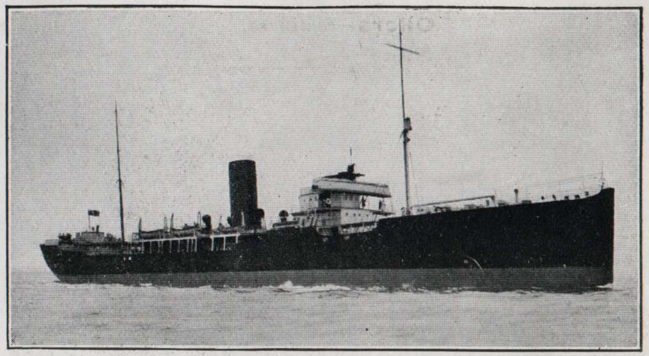
WAR BAHADUR. *Photo, Abrahams, Devonport (added* 1927).

(Rigs vary considerably in these ships; but all except *War Krishna* are more or less similar to above.)



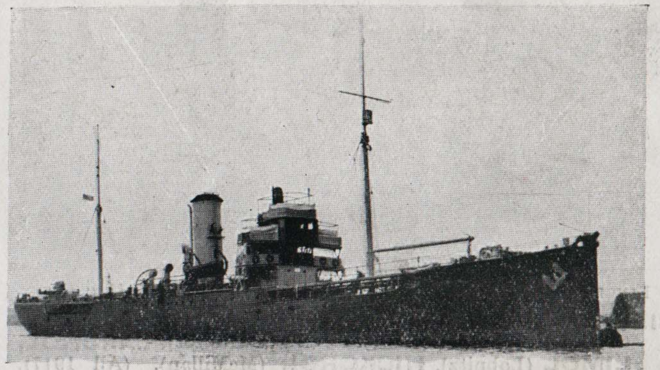
WAR KRISHNA. *Photo, Abrahams, Devonport (added* 1927).

**WAR AFRIDI** (R. Duncan & Co., 1920), **WAR BAHADUR** (1918), **WAR MEHTAR** (1920), (both Armstrong); **WAR BRAHMIN** (1920), **WAR DIWAN** (1919), **WAR PINDARI** (1920), all three Lithgows; **WAR BHARATA** (1920), **WAR NAWAB** (1919), **WAR NIZAM** (1918), **WAR SUDRA** (1920), all four Palmers; **WAR HINDOO** (Hamilton, 1919); **WAR KRISHNA** (Swan Hunter, 1919); **WAR PATHAN** (1919), **WAR SIRDAR** (1920), both Sir J. Laing & Sons; **WAR SEPOY** (W. Gray & Co., 1919). Displacement: from 11,660 to 11,681 tons. Dimensions: 400 × $52\frac{1}{4}$ × $25\frac{2}{3}$ feet. Deadweight capacities vary from 6300 tons (*War Pindari*) to 8100 tons (*War Bahadur*). Triple expansion engines and cylindrical boilers. I.H.P. 3.000 = 10 kts.



LEAF TYPE. *Photo added* 1927.

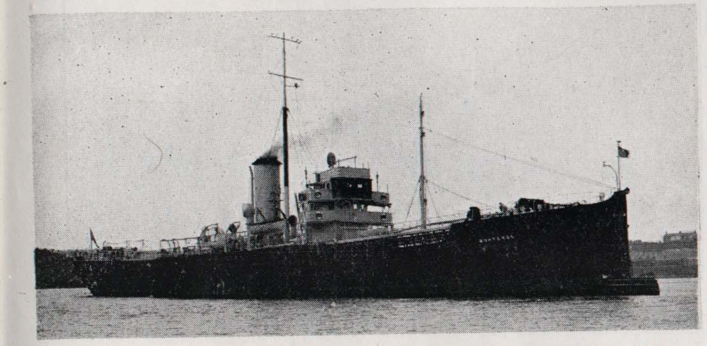
**APPLELEAF** (ex-*Texol*) (Workman Clark), **CHERRYLEAF** (Sir R. Dixon & Co.), **PLUMLEAF** (ex-*Trinol*) (Swan Hunter), **BRAMBLELEAF** (Russell & Co.), **ORANGELEAF** (J. L. Thompson & Sons), **PEARLEAF** (W. Gray & Co.). All launched 1917. Displacements: from 12,270 to 12,370 tons. Dimensions: 405 × $54\frac{1}{2}$ × $27\frac{1}{2}$ feet. Triple expansion engines and cylindrical boilers. I.H.P.: 6,750 = 14 kts. Deadweight capacity: First three, 5,400 tons; second three, 5,000 tons.



SLAVOL. 1920 *Photo, Abrahams, Devonport.*

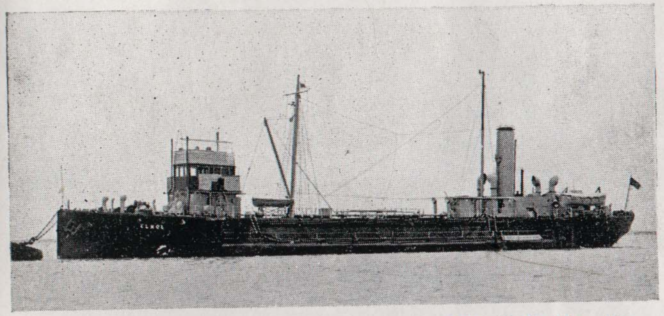
**BELGOL** (Irvine's S.B. & D.D. Co.), **CELEROL** (Short Bros.), **FORTOL** (McMillan), **PRESTOL** (Napier & Miller), **RAPIDOL** (W. Gray), **SLAVOL**, (Greenock D.Y. Co.). All launched 1917. Displacements: from 5,049 to 5,600 tons. Dimensions: 335 × $41\frac{1}{2}$ × $20\frac{1}{2}$ feet. I.H.P.; 3,375 = 14 kts. Own Oil: 300 tons. Cylindrical boilers. Complement: 39. Deadweight capacity: 2,000 tons.

## Oilers—*continued.*



MONTENOL. 1936, *Fighting Ships.*

**FRANCOL** (Earles S.B. Co.), **MONTENOL** (W. Gray), **SERBOL** (Caledon S.B. Co.) Displacements: 5,620, 5,049 and 5,600 tons, respectively. Other details as *Belgol* on preceding page. All launched 1917.

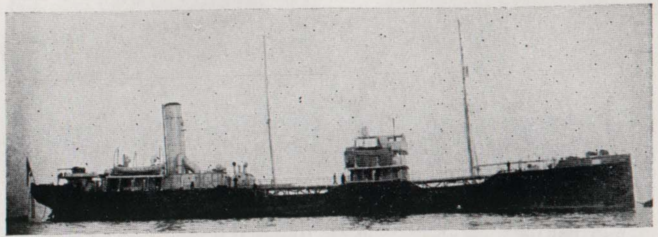


ELMOL. 1935, *R. Perkins, Esq.*

**BIRCHOL, BOXOL** (Barclay, Curle), **EBONOL** (Clyde S.B. Co.), **ELDEROL, ELMOL** (Swan Hunter), **LARCHOL, LIMOL** (Lobnitz), **HICKOROL** (McMillan). (All 1917). Displacements: from 2,365 to 2,410 tons. Dimensions: 220 × $34\frac{2}{3}$ × $13\frac{1}{2}$ feet. Triple expansion engines and cylindrical boilers. I.H.P. 700 = 9 kts. Own oil: 40 tons. Complement, 19. Deadweight capacity: 1000 tons.

**DISTOL** (W. Dobson & Co.), **PHILOL, SCOTOL** (Tyne Iron S.B. Co.), **KIMMEROL, VISCOL** (Craig, Taylor). (All 1916). Displacements: from 2,200 to 2,400 tons. Dimensions: 220 × $34\frac{2}{3}$ × $12\frac{1}{2}$ feet, otherwise as *Elmol* type, above.

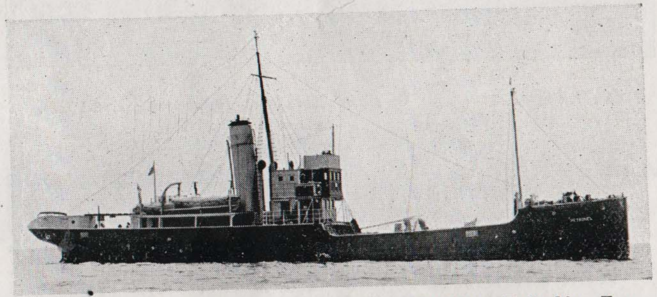
## Oilers—*continued.*



1920 *Photo, Coates, Harwich.*

**MIXOL** (Caledon S. B. & Eng. Co., 1916). **THERMOL** (Greenock D.Y. Co., 1916). 4326 tons. Dimensions: 270 × $38\frac{1}{2}$ × $20\frac{1}{4}$ feet. I.H.P. 1200 = 11 kts. Oil: 150 tons. Deadweight capacity: 2000 tons.

## Petrol Carriers.



PETRONEL 1934 *Photo, R. Perkins, Esq.*

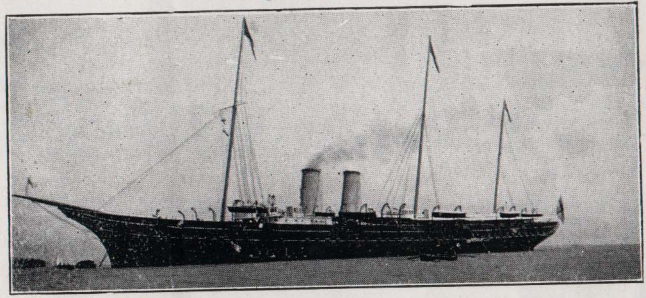
**PETROBUS, PETRELLA,** (Dunlop, Bremner, 1918). Displacement: 1024 tons. Dimensions: $164 \times 28 \times 11\frac{1}{2}$ feet. I.H.P. 500=9-10 kts. Deadweight capacity: 300 tons. Own oil: 50 tons. Cylindrical boilers. Complement, 16.

## Water Carriers.

**PETRONEL.** Sister ship to *Petrobus* and *Petrella.*

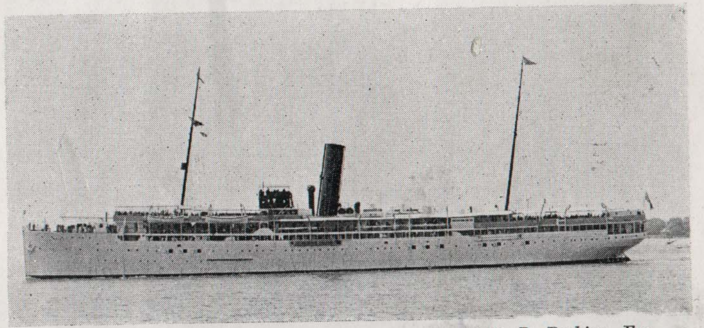
**CORONATION, CREMYLL.** Laid down 1937, by John Crown & Sons, Sunderland.

## Royal Yacht.



**VICTORIA AND ALBERT** (1899). 4700 tons. Dimensions: 380 (*p.p.*) × 40 × 18 feet (*mean* draught). Guns: 2—6 pdr. (bronze). H.P. 11,800 = 20 kts. Machinery: 2 sets triple expansion. Belleville boilers. Coal: *normal*, 350 tons; *maximum*, 2000 tons. Complement: 363.

## Hospital Ship.

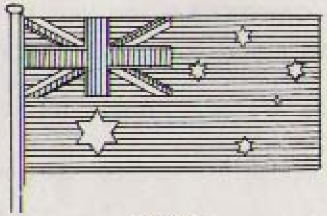


MAINE. 1935, *R. Perkins, Esq.*

**MAINE** (ex-Pacific Steam Navigation Company's s.s. *Panama*) (Fairfield Co., 1902), Purchased in 1920 and equipped for present duties. Displacement: 10,100 tons. Dimensions: $401\frac{1}{6}$ × $58\frac{1}{3}$ × $23\frac{1}{2}$ feet. Machinery: Triple expansion. I.H.P. 4,000 = 13 kts. 2 D.E. and 2 S.E. boilers. Coal: 1,300 tons.

# ROYAL AUSTRALIAN NAVY.

Ky - 2
kpn - 2
3M - 8
9P - 9
wn - 2
Thy - 9.40



Ensign.

## Australian Naval Board.

*Commander-in-Chief:* H. E. Brigadier-General the Rt. Hon. Lord Gowrie, V.C., G.C.M.G., C.B., D.S.O.
*President:* Minister of State for Defence, The Hon. Sir Archdale Parkhill, K.C.M.G., M.P.
1st *Naval Member:* Vice-Admiral Sir Ragnar Colvin, K.B.E., C.B.
2nd *Naval Member:* Captain G. P. Thomson, O.B.E., R.N.
*Finance and Civil Member:* Mr. Ralph Abercrombie, O.B.E.
*Secretary:* Hon. Paymaster Commander G. L. Macandie, C.B.E.

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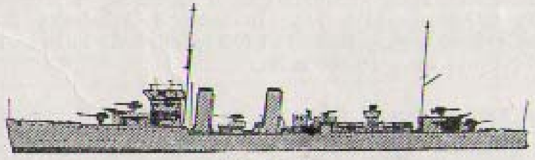
*Liaison Officer, London:* Paymr. Lieut. Commander E. H. Leitch, R.A.N.

## Commanding Australian Squadron.

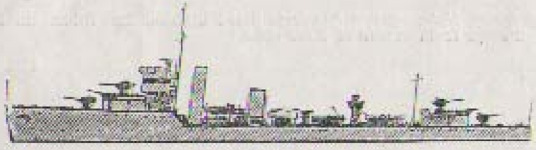
Rear-Admiral R. H. O. Lane-Poole, C.B., O.B.E.

## Commonwealth Navy Estimates.

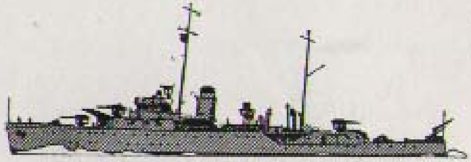
1935–36, £1,886,746. 1936–37, £3,237,387.
Seagoing Personnel, 4,290. Reserves exceed 5,000.



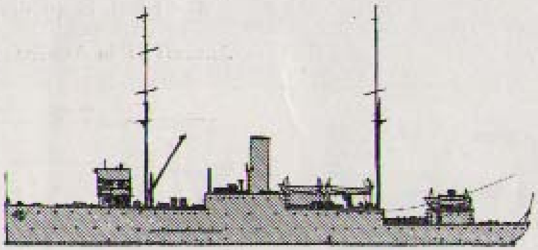
Stuart.



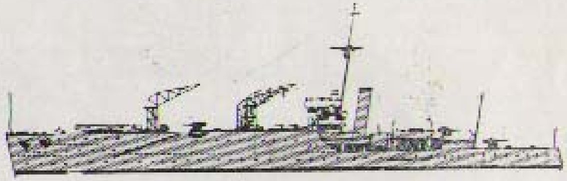
"V" *class.*



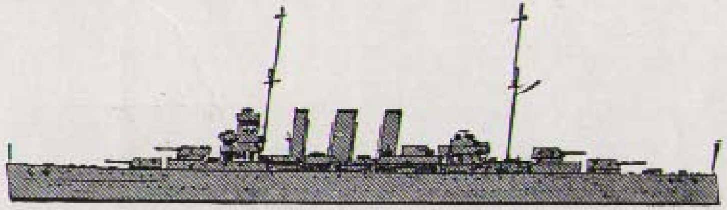
Yarra, Swan.



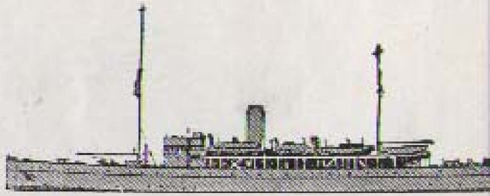
Penguin.



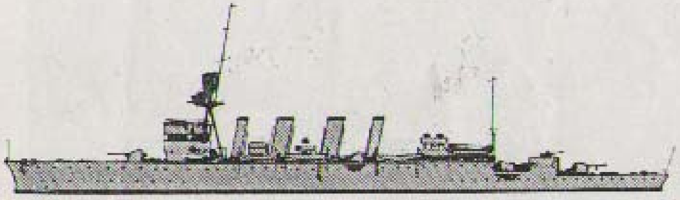
Albatross.



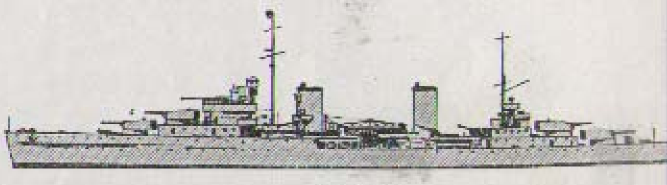
Australia, Canberra.



Moresby.



Adelaide.



Sydney

Chropshire ap 42

## AUSTRALIA (17th March, 1927). + CANBERRA (31st May, 1927).

"Standard" displacement, 9,870 tons and 9,850 tons respectively. (13,630 *deep load*).
Complement, 679. (710 as flagship).

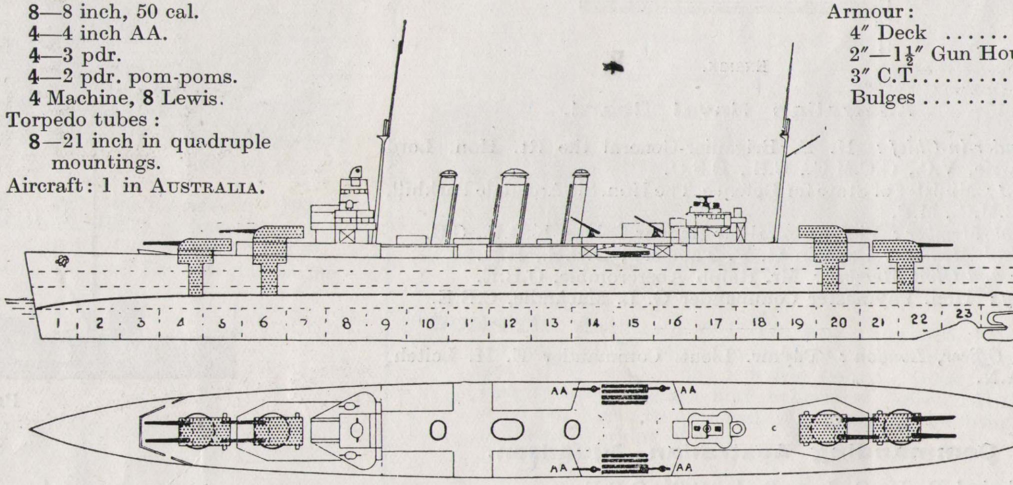
Length (*p.p.*) 590 feet, (*o.a.*) 630 feet. Beam, 68⅓ feet. Draught, 16¼ feet (*mean*).

Guns:
- **8**—8 inch, 50 cal.
- **4**—4 inch AA.
- **4**—3 pdr.
- **4**—2 pdr. pom-poms.
- **4** Machine, **8** Lewis.

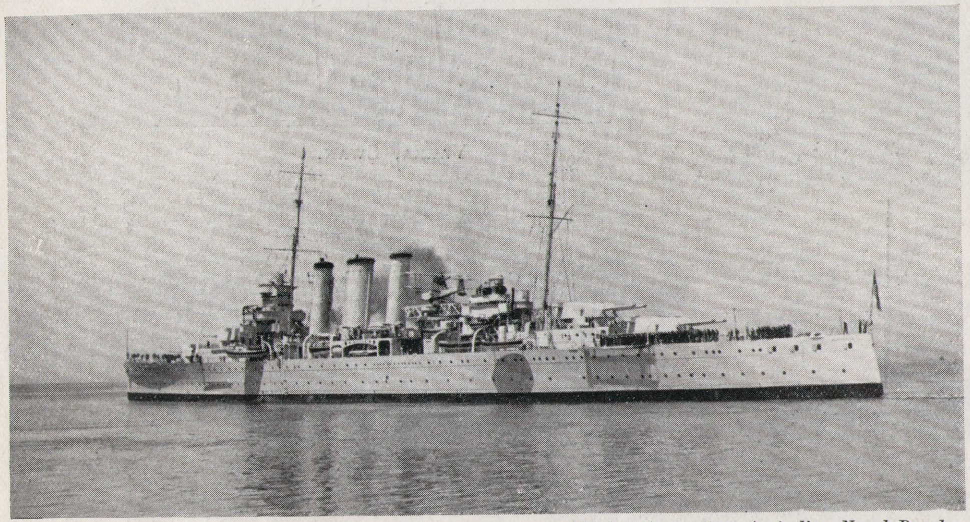
Torpedo tubes:
- **8**—21 inch in quadruple mountings.

Aircraft: 1 in AUSTRALIA.

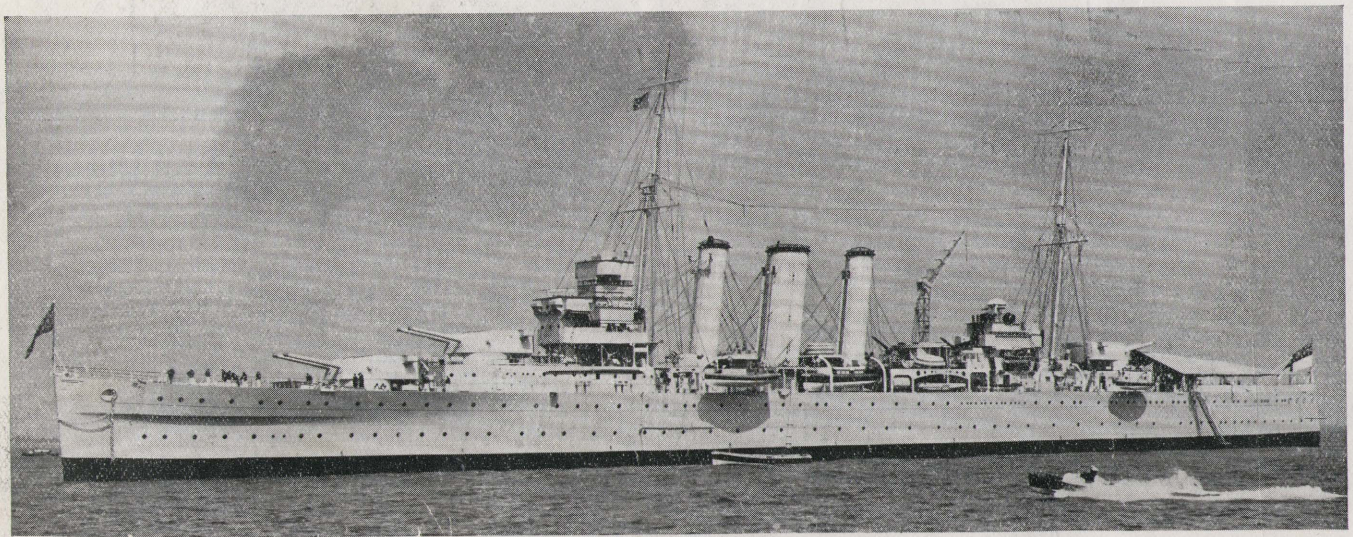
Armour:
- 4″ Deck ......
- 2″—1½″ Gun Hou
- 3″ C.T.........
- Bulges ........



(*Both ships to be reconstructed on similar lines to* CORN



AUSTRALIA. *Added* 1937, *courtesy Australian Naval Board.*

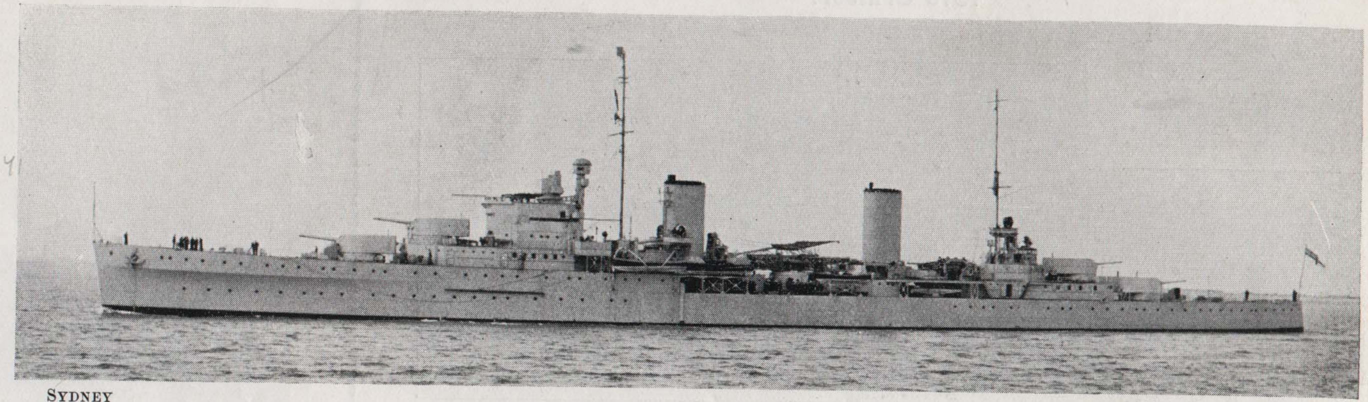


AUSTRALIA. 1935, *R. Perkins, Esq.*

Machinery: Brown-Curtis geared turbines. 4 screws
S.H.P. 80,000 = 31·5 kts. Boilers: 8 Admiralty 3-
Oil fuel: 3400 tons. Radius at full speed, 2300 miles; at
speed (11—14 kts.), 10,400 miles.

*General Notes.*—Sisters to *Kent* class, in British Navy Section. D
Sir E. H. Tennyson d'Eyncourt. Laid down by John Brown &
Clydebank, in 1925, and completed in April and July, 1928, r
(See also detailed notes under British *Kent* class, which apply t
ships.)

*Appearance Notes.*—Syren brackets fitted high on first funnel disti
2 ships from others of *Kent* class.



SYDNEY

1935, *Wright & Logan*.

**YDNEY** (ex-*Phaeton*. Swan Hunter. Sept. 22, 1934). Usg. sunk 20.11.41

isplacement : 6,830 tons.

omplement : 550.

imensions : 530 (*p.p.*), 555 (*w.l.*) × 56⅔ × 15⅔ feet (*mean* draught).

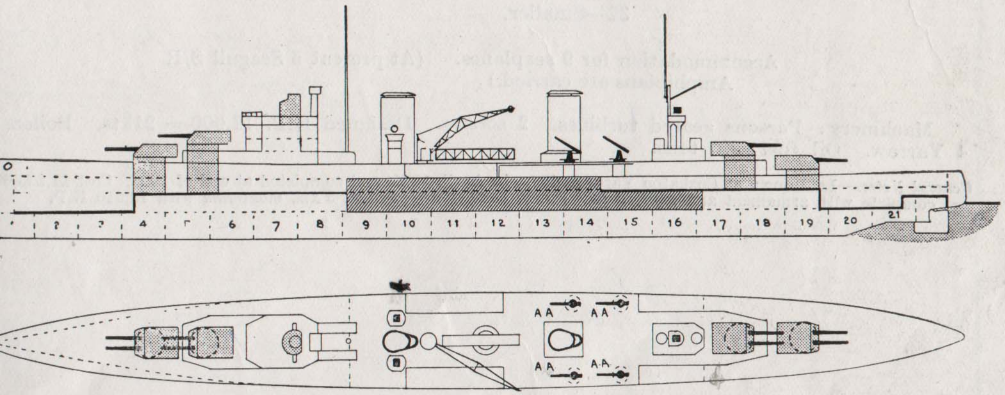
uns : **8**—6 inch.
**4**—4 inch AA.
**4**—3 pdrs.
**17** smaller.

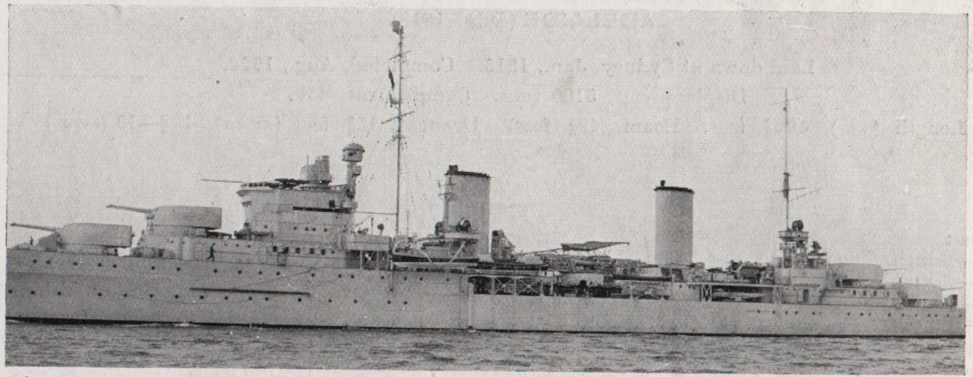
Armour :
1″ turrets.
1″ bridges.
2—3″ side.

ubes : **8**—21 inch (quadrupled).

rcraft : 1 Seagull S/R, with catapult.

*e to Plan.*—Torpedo Tubes are in position shown in hotos.





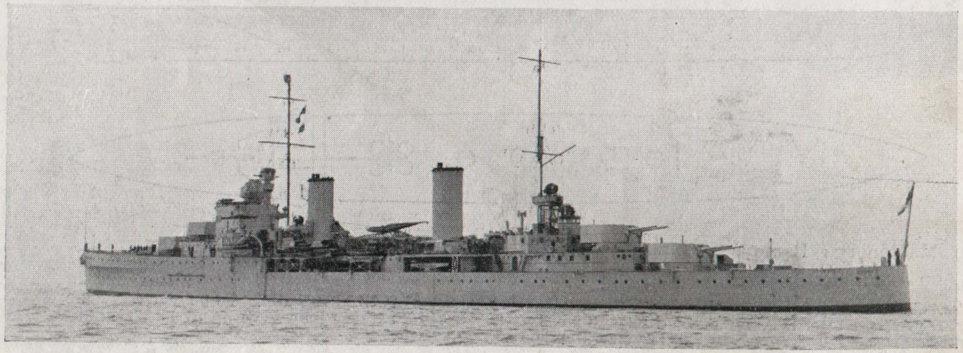
SYDNEY

1935, *Wright & Logan*.

chinery : 4 Parsons geared turbines by Wallsend Slipway Co. 4 shafts. S.H.P. : 72,000 = 32·5 kts. Boilers : 4 Admiralty 3-drum type. Oil : 1,725 tons.

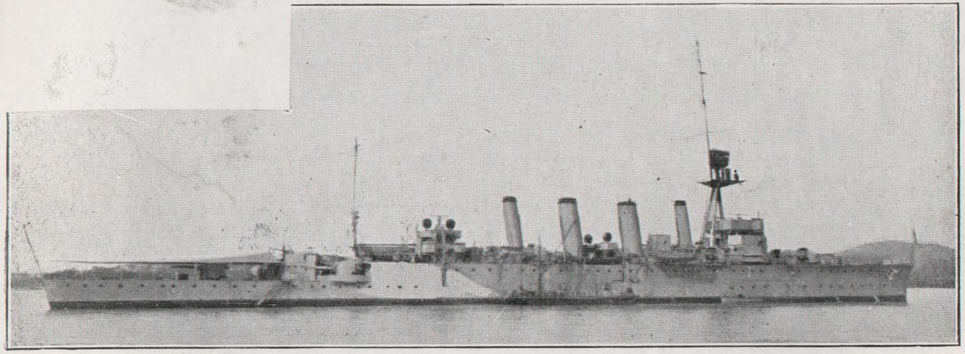
.—Ordered Feb. 10, 1933, as H.M.S. *Phaeton* of *Amphion* class. Laid down July 8, 1933, and acquired for Royal Australian Navy in the following year. Completed Sept. 24, 1935. Cost £1,422,727.

*arance Note.*—To distinguish from *Amphion* and *Apollo*, observe revolving catapult between funnels.



1935, *Wright & Logan*.

## 1915 Cruiser.



ADELAIDE. 1924 *Photo, W W. Stewart, Esq.*

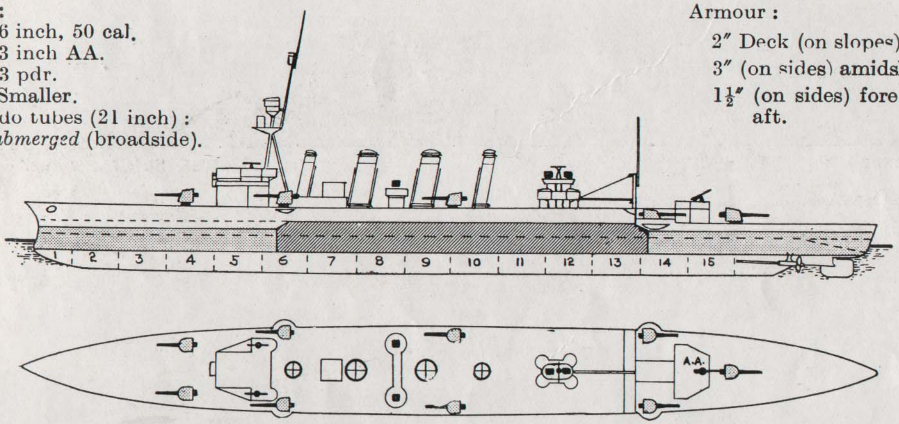
**ADELAIDE** (July, 1918).

Laid down at Sydney, Jan., 1915. Completed, Aug., 1922.
Displacement, 5100 tons. Complement, 470.
Length (*o.a.*), 462$\frac{2}{3}$ feet. Beam, 49$\frac{5}{6}$ feet. Draught, 15$\frac{5}{6}$ feet (*mean*), 17$\frac{3}{4}$—19 (*max.*)

Guns :
- **9**—6 inch, 50 cal.
- **1**—3 inch AA.
- **4**—3 pdr.
- **12**—Smaller.

Torpedo tubes (21 inch) :
- 2 *submerged* (broadside).

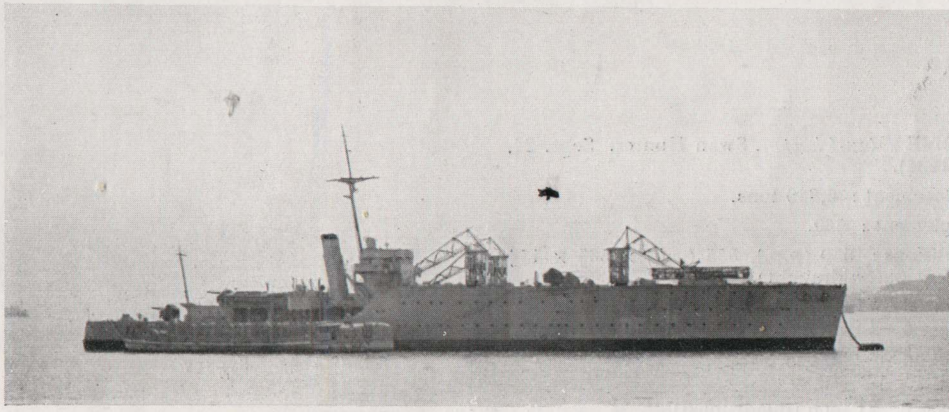
Armour :
- 2″ Deck (on slopes).
- 3″ (on sides) amidships.
- 1$\frac{1}{2}$″ (on sides) fore and aft.



Machinery : Parsons turbines. Boilers : Yarrow, $\frac{1}{3}$ oil, $\frac{2}{3}$ coal burning. Designed S.H.P. 25,000=25·5 kts. Coal : 860 tons. Oil fuel : 550 tons. 2 shafts.

*Notes.*—Laid down at Cockatoo Dockyard, Sydney, in 1915. Cost £1,271,782 to build. To be refitted 1938-9.
*Gunnery Notes.*—Electric Ammunition Hoists, dredger type. Reported 6 inch guns have up to 40° elevation.
*Torpedo Notes.*—7 Torpedoes carried. 4 Searchlights.

## Seaplane Carrier.



*Added* 1937 *courtesy Australian Naval Board.*

**ALBATROSS** (Feb. 21st, 1928).

Standard Displacement 4800 tons. Complement 450.

Length (*p.p.*) 422 ft., (*o.a.*) 443$\frac{3}{4}$ ft.
Beam 58 ft. (60$\frac{5}{8}$ ft. extreme). Draught, 16$\frac{1}{4}$ ft.

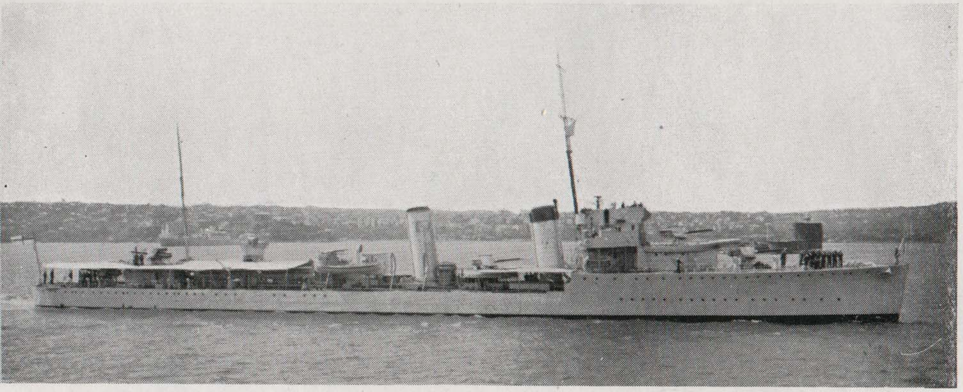
Guns :
- **4**—4·7 inch AA.
- **32**—Smaller.

Accommodation for 9 seaplanes. (At present 6 Seagull S/R Amphibians are carried.)

Machinery: Parsons geared turbines. 2 screws. Designed H.P. 12,000 = 21kts. Boile
4 Yarrow. Oil fuel: 997 tons.

*General Notes.*—Laid down at Cockatoo Yard, Sydney, in April, 1926, and completed at end of 1928. Cost £1,200
complete with armament and equipment. Trials, Dec., 1928, gave 22·5 kts. *maximum* with 12,910 H.P.

## Flotilla Leader.



*Added* 1937, *courtesy Australian Naval Board.*

***uart*** (Hawthorn Leslie, Aug. 22, 1918).

isplacement : 1530 tons. Dimensions : 332½ (*o.a.*) × 31¾ × 12¼ feet (*max.* draught)

uns : **5**—4·7 inch, **1**—3 inch AA., **7** smaller.

ubes : **6**—21 inch.

rown-Curtis all-geared Turbines. H.P. 40,000 = 36·5 kts. Yarrow small tube boilers. Oil : 504 tons. Complement, 183. Transferred to R.A.N. 1932.

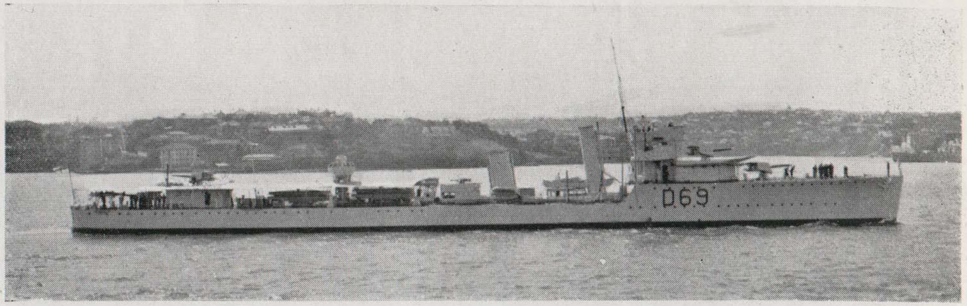
VI-49

[illegible] 4 ЭМ [illegible] [illegible] англ. тип „D"

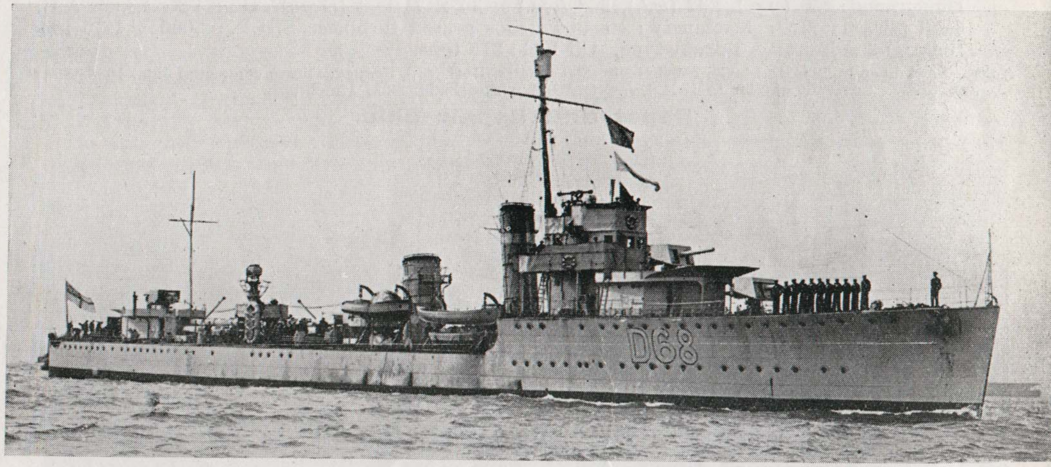
[illegible] [illegible] ЭМ Тобрук } 2325т 5-114 2-V-533 34 узл
Анзак } 3300т полн 8-40

## Destroyers.

## 4 "W" and "V" type.



VENDETTA. *Added* 1937 *courtesy Australian Naval Board.*



VAMPIRE.

W W

1 *Palmer* : **Waterhen** (March 26, 1918). 1 *Stephen* : **Voyager** (May 8, 1918).
1 *Fairfield* : **Vendetta** (Sept. 3, 1917). 1 *White* : **Vampire** (May 21, 1917).

Displacement : 1100 tons. Dimensions : 312 (*o.a.*) × 29½ × 10⅗ feet (*mean* draught). Complement : 134.

Guns : **4**—4 inch, **2**—2 pdr., **1** M.G., **4** Lewis.

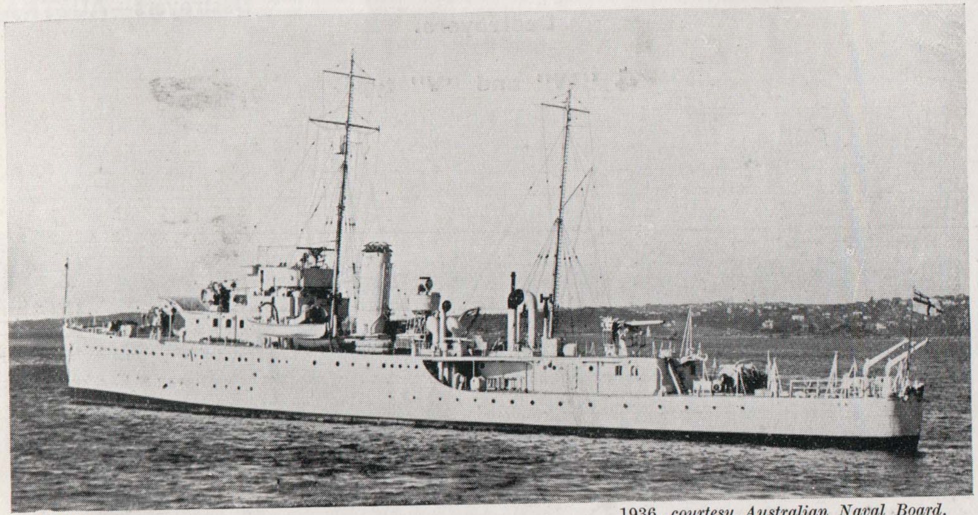
Tubes : **6**—21 inch.

Brown-Curtis all-geared Turbines. H.P. 27,000 = 34 kts. Yarrow boilers. Oil fuel: 360 tons. Transferred to R.A.N 1932.

*Notes.*—*Vampire* is equipped internally as flotilla leader, having been so employed during the War.

1 30 6 41 0 Средиз
2 25 9 42 ? Тимор
4 9.4.42 0 Бенгал.

## Escort Vessels.

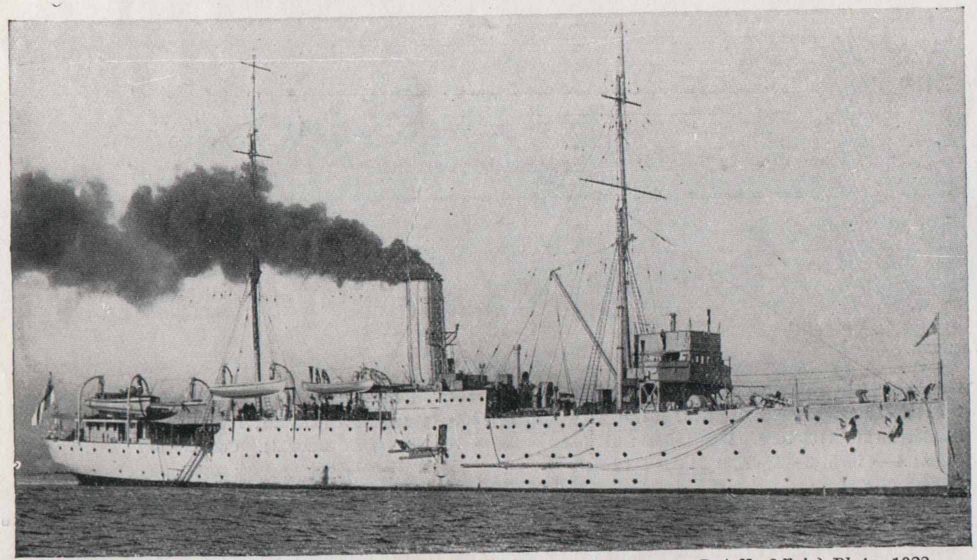


YARRA. 1936, *courtesy Australian Naval Board.*

**YARRA** (March 28, 1935), **SWAN** (1936). Displacement: 1,060 tons. Complement, 100. Dimensions: 250 (*p.p.*), 262 (*w.l.*), 266 (*o.a.*) × 36 × 7½ feet (*mean*). Guns: **3**—4 inch AA., **4**—3 pdr., **11** M.G. Machinery: 2 sets Parsons geared turbines. S.H.P.: 2,000 = 16·5 kts. Boilers: 2 Admiralty 3-drum type. Oil fuel: 275 tons.

*Notes.*—Laid down in 1934 and 1935, respectively, at Cockatoo Dockyard, Sydney. *Yarra* completed Jan., 1936, *Swan* Jan., 1937. Generally similar to H.M.S. *Deptford* but with an additional 4 inch gun.

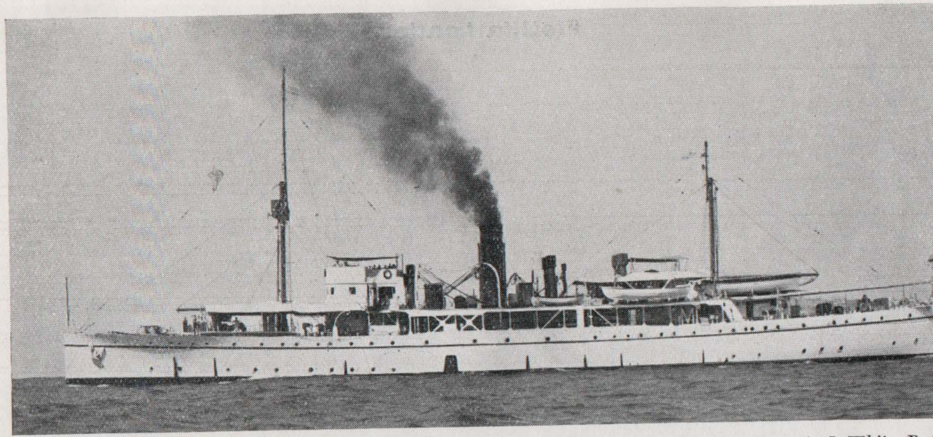
## Depot and Repair Ship.



*R.A.N. Official Photo*, 1922.

**PENGUIN** (ex-*Platypus*) (J. Brown, Clydebank. Begun Sept. 2nd, 1914; launched Oct. 28th, 1916; completed Mar., 1917.) 3455 tons. Dimensions: 310 (*w.l.*), 325 (*o.a.*) × 44 × 15⅔ feet. (*max.* draught). Guns: *nil*. I.H.P. 3500 = 15½ kts. Two sets triple expansion reciprocating engines and 4 cylindrical return-tube boilers. 2 screws. Coal: 450 tons. Complement, 357. Serves as Destroyer Depot Ship and Fleet Repair Ship.

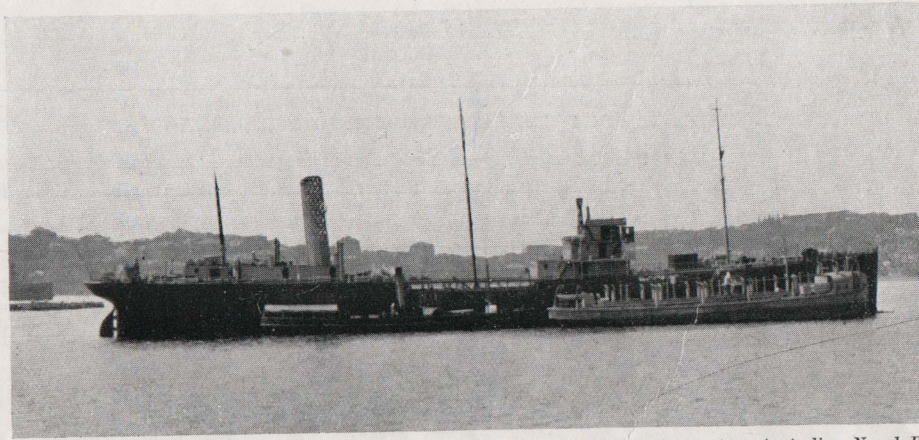
## Surveying Vessel.



1935, *courtesy of Paym. Com. A. J. White, R.A*

**MORESBY** (ex-*Silvio*, Barclay, Curle & Co., 1918). Ex-Minesweeper of "24" Racehorse c
converted by Pembroke D.Y., 1924–25. 1,320 tons. Dimensions: 276½ (*o.a.*) × 35 × 12
Guns: **1**—3 pdr. I.H.P.: 2,500 = 17 kts. Cylindrical boilers. Oil fuel: 230 tons (Conve
from coal in 1935). Complement, 141.

## Miscellaneous.



*Added* 1937, *courtesy Australian Naval B*

**KURUMBA** (Swan Hunter, Sept., 1916). Fleet Oiler.
Displacement: 7930 tons (3978 tons *gross*). Complement, 44.
Dimensions: 366 (*p.p.*), 378 (*o.a.*) × 45½ × 23½ feet (*max.* draught).
Triple expansion engines and cylindrical boilers. 2 shafts.
I.H.P.: 2,000 = 10 kts. Fuel: 950 tons oil.

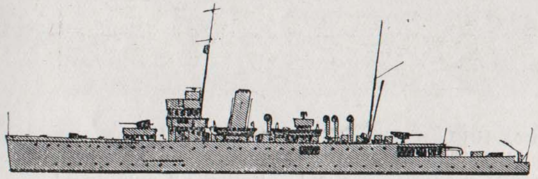
**CERBERUS** (ex-*Kooranga*). Motor vessel. 61 tons. H.P.: 220. 1 screw. Guns: 2—4
2—3 inch, 4—3 pdr. Serves as tender to Flinders Naval Depot, Waterport.

# ROYAL INDIAN NAVY.

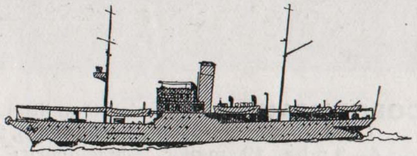
*Flag Officer Commanding R.I.N.:* Rear-Admiral Herbert Fitzherbert, C.B., C.M.G.

*Flags.*—Vessels of R.I.N. fly same Ensign and pendant as H.M. Ships. The Indian flag is flown as a Jack. Flag Officer when afloat flies the flag appropriate to his naval rank.

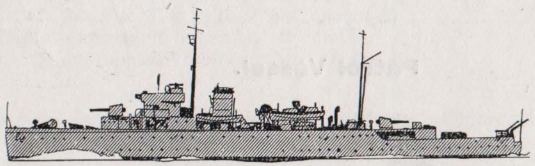
Official Photos have been furnished by courtesy of the Flag Officer Commanding R.I.N.



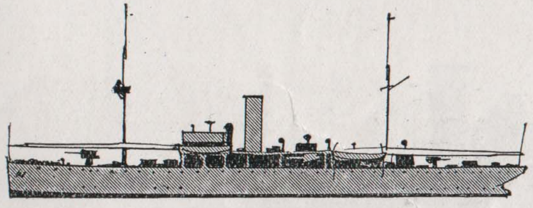
HINDUSTAN.



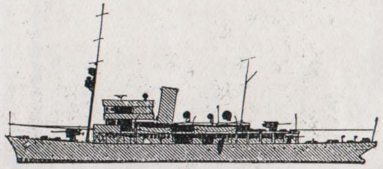
INVESTIGATOR.



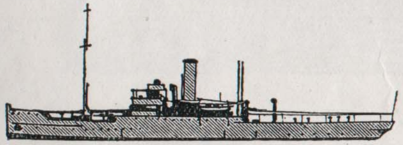
INDUS.



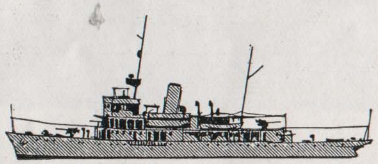
CORNWALLIS.



CLIVE.

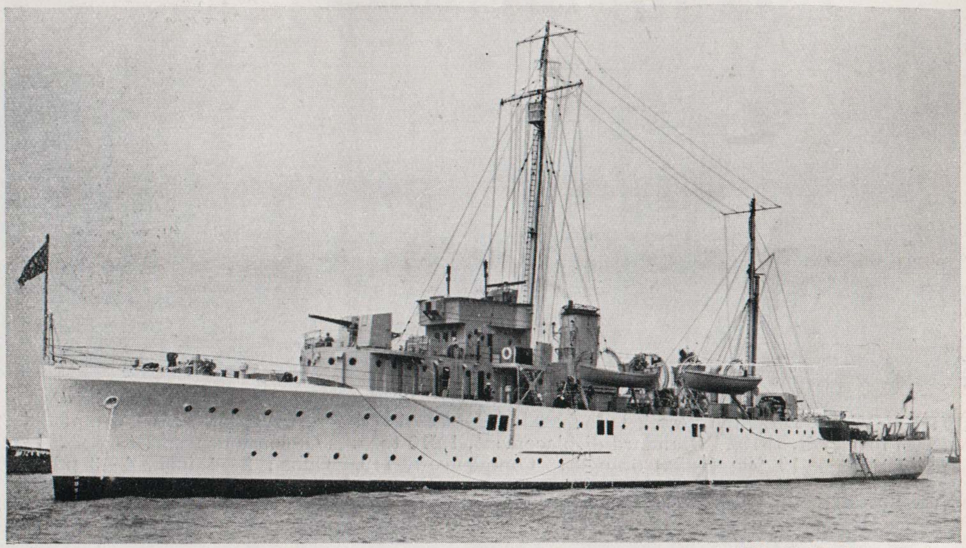


PATHAN.



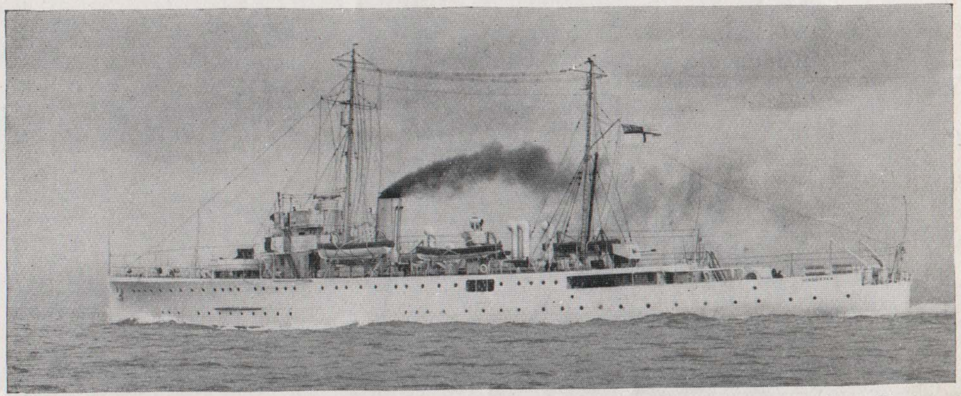
LAWRENCE.

## Escort Vessels.



INDUS. 1935, *R. Perkins, Esq.*

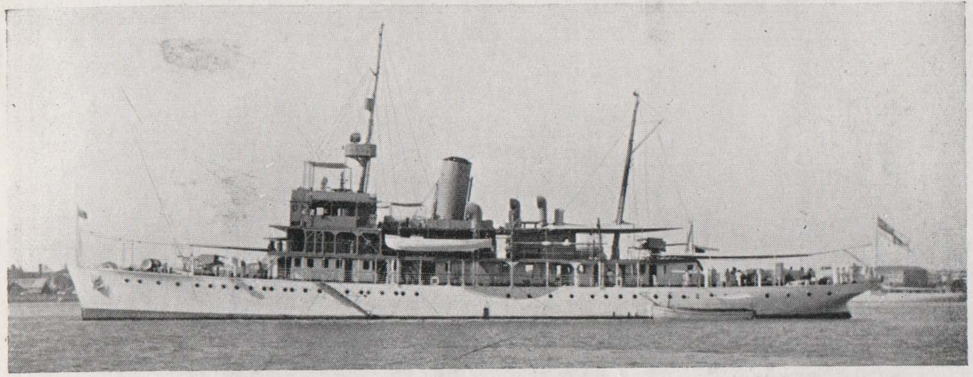
**INDUS** (Hawthorn Leslie. Aug. 24, 1934). Displacement: (standard) 1,190 tons. Complement: 119. Dimensions: $296\frac{1}{2}$ (*o.a.*) × $35\frac{1}{2}$ × $8\frac{3}{4}$ feet (*mean* draught). Guns: **2**—4·7 inch, **4**—3 pdr., **11** smaller. Machinery: Parsons I.R. Turbines with single reduction gearing. 2 shafts. Boilers: 2 Admiralty 3-drum type, 250 lbs. pressure. S.H.P.: 2,000 = 16·5 kts. Oil fuel: 300 tons. Is a slightly enlarged edition of the *Grimsby* class, which she resembles closely, and has internal arrangements on similar lines to *Hindustan*, below.



HINDUSTAN. 1930 *Photo, favour of Messrs. Swan Hunter.*

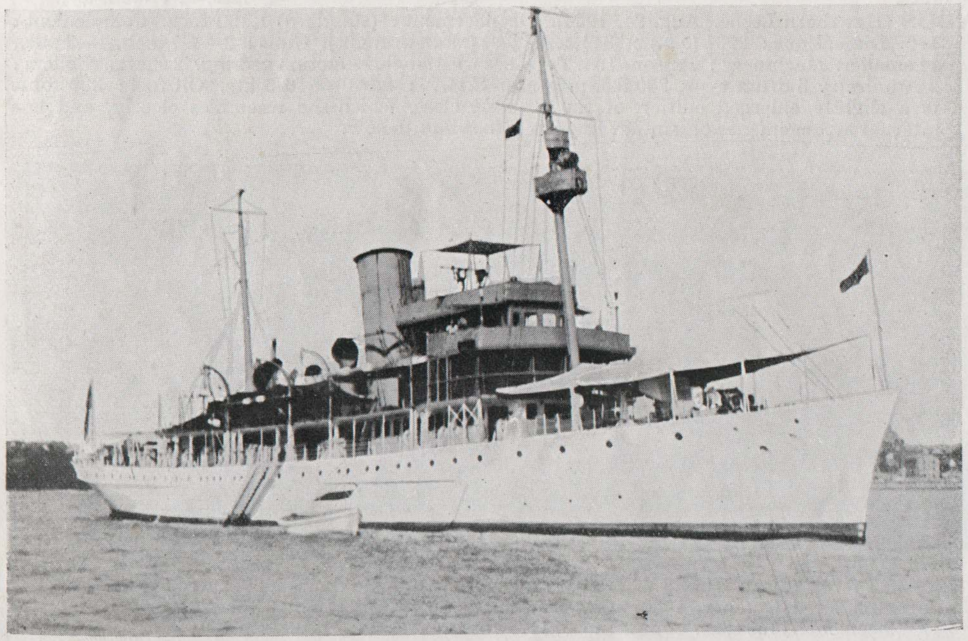
**HINDUSTAN.** (Swan Hunter & Wigham Richardson). Laid down 1929, launched May 12, 1930 and completed October, 1930. Dimensions: $296\frac{1}{2}$ (*o.a.*) × 35 × $8\frac{3}{4}$ feet (*mean*). Standard Displacement: 1190 tons. Complement, 119. Guns: **2**—4 inch, **4**—3 pdr., 10 smaller. Machinery: Parsons impulse reaction Turbines with single reduction gearing; 2 shafts. 2 Admiralty 3-drum type boilers, 250 lbs. pressure. S.H.P.: 2000 = 16·5 kts. Oil: 275 tons. The internal arrangements have been designed with special care, making the ship most suitable for the Tropics, and the ventilation has been very carefully planned. The refrigerating plant is of the electrically driven $CO_2$ type. Is a slightly enlarged edition of *Hastings* class.

## Escort Vessels.



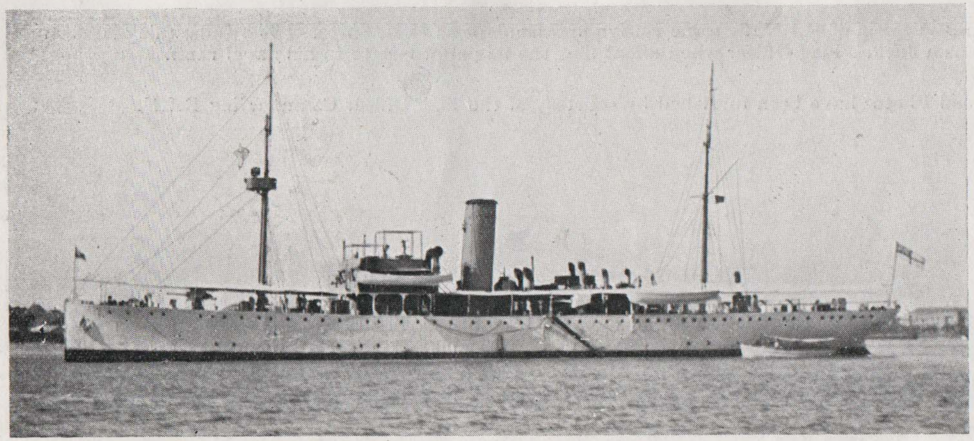
1932 *Photo, Official.*

**LAWRENCE** (ex-Despatch Vessel, launched by Messrs. Beardmore, July 30th, 1919, completed December 27th, 1919). Standard displacement, 1,210 tons. Dimensions: 225 (*p.p.*), 241$\frac{1}{2}$ (*o.a.*) × 34 × 12 feet (*max.*) draught. Complement, 119. Guns: **2**—4 inch, **4**—3 pdrs., **12** smaller. All-geared turbines. 2 screws. 2 Babcock boilers. S.H.P. 1900 = 15 kts. Oil: *normal,* 144 tons; *max.*, 153 tons.



**CLIVE** (launched by Messrs. Beardmore, December 10th, 1919, completed April 20th, 1920). Standard displacement, 1,748 tons. Dimensions: 240 (*p.p.*), 262$\frac{1}{4}$ (*o.a.*) × 38$\frac{1}{2}$ × 14 feet. Complement, 123 Guns: **2**—4 inch, **4**—3 pdrs., **12** smaller. All-geared turbines. 2 screws. 2 Babcock & Wilcox boilers. S.H.P 2,000 = 14$\frac{1}{2}$ kts. Oil: 179 tons *normal,* and 199 tons *max.*

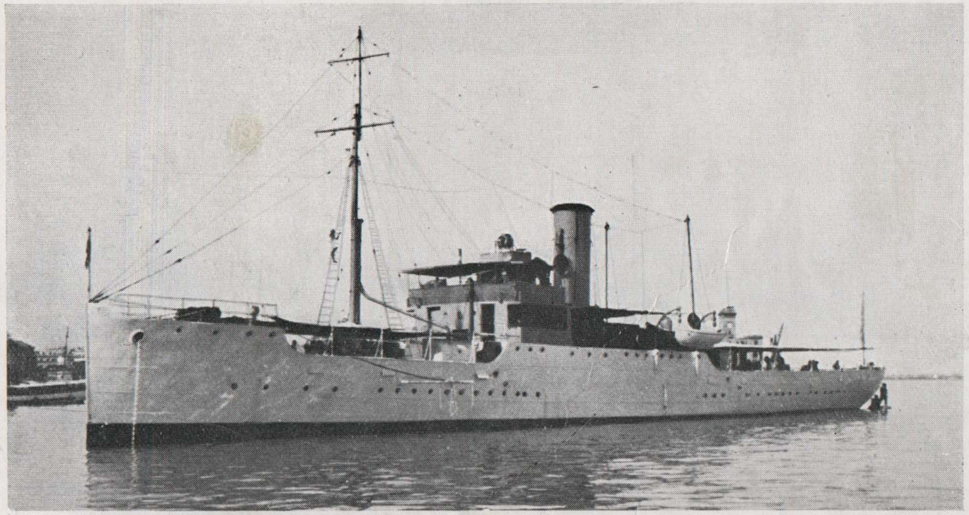
## Escort Vessel.



**CORNWALLIS** (ex *Lychnis*) Hamilton, August, 1917. Escort Vessel of *Anchusa* series, 1,383 tons. Dimensions: 255$\frac{3}{4}$ (*p.p.*), 266$\frac{1}{4}$ (*w.l.*), 277$\frac{3}{4}$ (*o.a.*) × 35 × 14$\frac{1}{3}$ feet. Guns: **3**—4 inch, **4**—3 pdrs. **12** smaller. Machinery: 4-cyl. triple expansion vertical. Boilers: 2 cylindrical. 1 screw. Designed H.P. 2700 = 16·5 kts. Coal: 260 tons. Complement, 119.

*Note.—Cornwallis* sold to Indian Government by the Admiralty, September 1921. Sister ship *Elphinstone* wrecked, Jan. 1925.

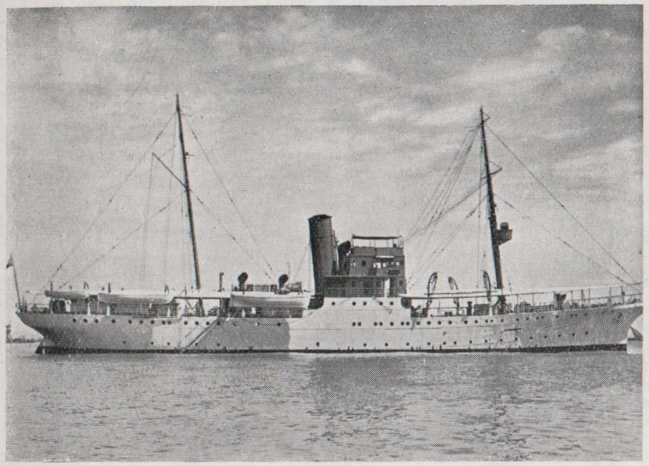
## Patrol Vessel.



PATHAN. 1932 *Photo, Official.*

**PATHAN** (ex P.C. 69). Workman Clark. (1918). Standard displacement, 661 tons. Dimensions: 247$\frac{1}{2}$ × 26$\frac{1}{4}$ × 9 feet. Turbines: S.H.P. 3500 = 20 kts. Oil, 164 tons. Guns: **1**—4 inch, **2**—3 inch. Complement, 66. (Used for training).

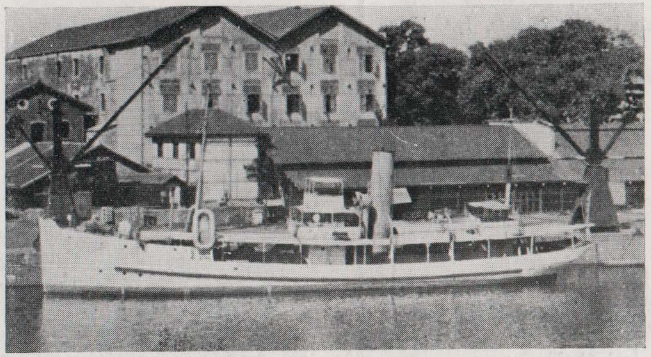
### Surveying Vessel.



1933 *Photo, Official.*

**INVESTIGATOR.** Ex-cable ship *Patrick Stewart* (Simons, 1924). Displacement : 1,572 tons. Complement, 109. Dimensions : 226 (*pp.*), 247 (*o.a.*) × 37½ × 13½ feet (*mean* draught). No guns. Triple expansion engines. 2 shafts. H.P. : 1,137 = 12·5 kts. 2 cylindrical boilers. Oil fuel : 292 tons.

### Trawler.



1932 *Photo, Official.*

**MADRAS.** (Burns & Co., Calcutta, 1919). Standard displacement : 413 tons. Complement, 23. Dimensions : 125 (*pp.*), 134 (*o.a.*) × 23⅓ × 12 feet (*mean* draught). No guns. Machinery : Triple expansion, by Hawthorn Leslie. 1 shaft. H.P. : 460 = 10 kts. 1 cylindrical coal-fired boiler. Used for target towing.

# NEWFOUNDLAND.

## Transports, etc.

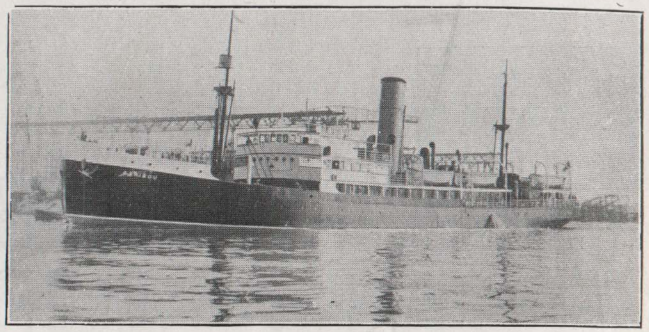


*Photo added* 1929 *by courtesy of Builders.*

**CARIBOU** (Nieuwe Waterweg Scheepsbouw Maatschappij, Rotterdam, 1925). 2222 tons *gross.* Dimensions : 266 × 41¼ × 18⅓ feet draught. Armament nil. I.H.P. 2800 = 14 kts. Machinery : Triple expansion. 1 screw. 2 S.E. boilers, working pressure 200 lbs. Coal : 411 tons. Complement, 42. Accommodation also provided for 180 passengers or 243 troops. Strengthened for ice navigation.

**NORTHERN RANGER.** (Fleming & Ferguson, Paisley, 1936). 1,365 tons *gross.* Complement, 32. Dimensions : 220 × 36 × 16⅚ feet draught. Speed 11·5 kts. Coal : 270 tons. Strengthened for ice navigation.

**KYLE.** (Swan Hunter, 1913). 1,055 tons *gross.* Complement, 34. Dimensions : 220 × 32 × 16⅔ feet draught. Speed : 13·5 kts. Strengthened for ice navigation.

**SAGONA.** (Dundee Shipbuilding Co., Ltd., 1912). 808 tons *gross.* Complement, 26. Dimensions : 175 × 28¼ × 16½ feet draught. Speed : 11 kts. Strengthened for ice navigation.

**DAISY.** (J. Duthie Torry Shipbuilding Co., Aberdeen, 1912). Displacement : 510 tons, 248 tons *gross.* Complement, 16. Dimensions : 125 × 18 × 10 feet draught. Speed : 10 kts.

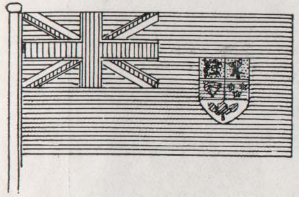
**PORTIA, PROSPERO.** (Murdoch & Murray, Port Glasgow, 1904). 978 tons *gross.* Complement, 32. Dimensions : 204 × 31 × 17 feet draught. Speed : 11·5 kts.

**ARGYLE, CLYDE, HOME.** (A. & J. Inglis, Glasgow, 1900). 439 tons *gross.* Complement, 20. Dimensions : 154½ × 25 × 12 feet draught. Speed : 10 kts.

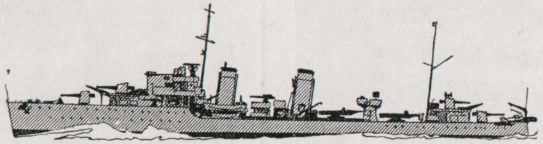
**GLENCOE.** (A. & J. Inglis, Glasgow, 1899). 767 tons *gross.* Complement, 24. Dimensions : 208 × 30 × 16 feet draught. Speed : 11 kts.

# ROYAL CANADIAN NAVY.

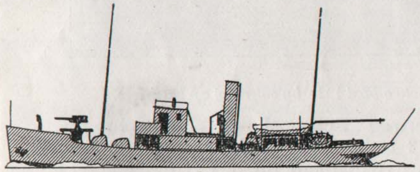
*Chief of the Naval Staff under Minister of National Defence*: Commodore P. W. Nelles, R.C.N.
*Personnel*: R.C.N., Officers, 104; Men, 862. R.C.N.R., 70 and 430. R.C.N.V.R., 80 and 930.
*Uniforms*: As British Navy.



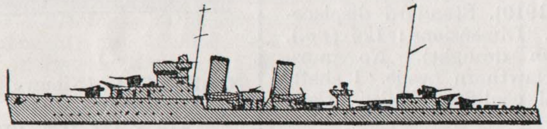
ENSIGN.



FRASER, ST. LAURENT.



ARMENTIÈRES *class* (3).



SKEENA, SAGUENAY.

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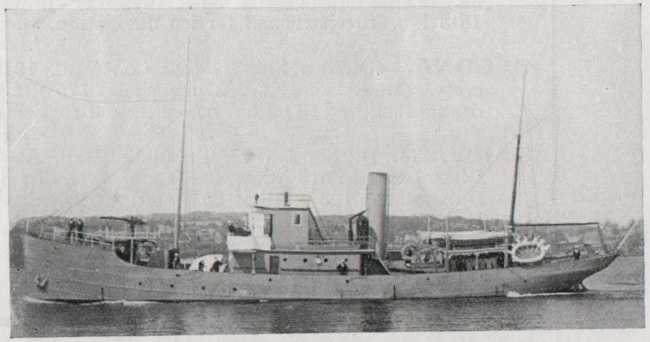
tario

## MINESWEEPERS.

4 Minesweepers of *Halcyon* type are under construction in Canadian shipyards, to replace trawlers described below.

### Minesweeping Trawlers.

(A = Atlantic, P = Pacific.)



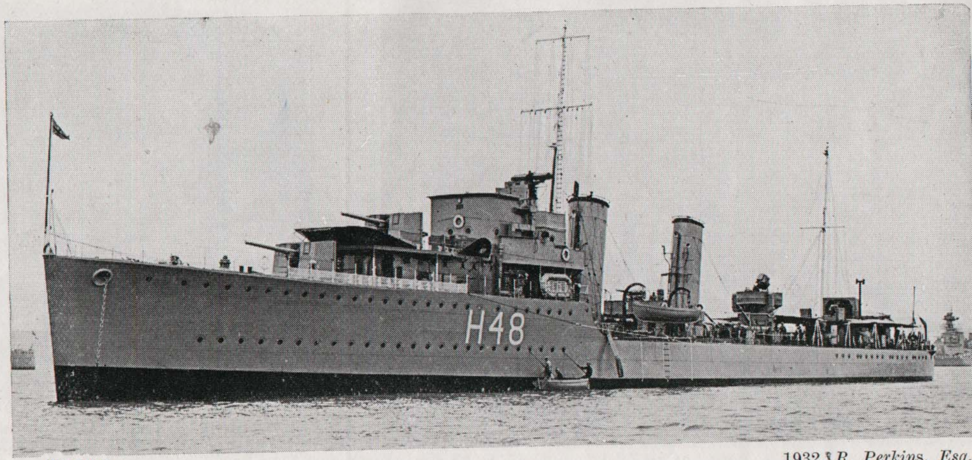
YPRES. 1932 *Photo, Official.*

(P) ***Armentières***, (A) ***Ypres***, (A) ***Festubert.***

Steel. Built 1918. Speed: 10 kts.
357 tons *gross*, 136 tons *net*. Complement, 18.
Dimensions: 130×25×14 feet. Guns: 1—3 inch.

## DESTROYERS.

### 2 "Fraser" class

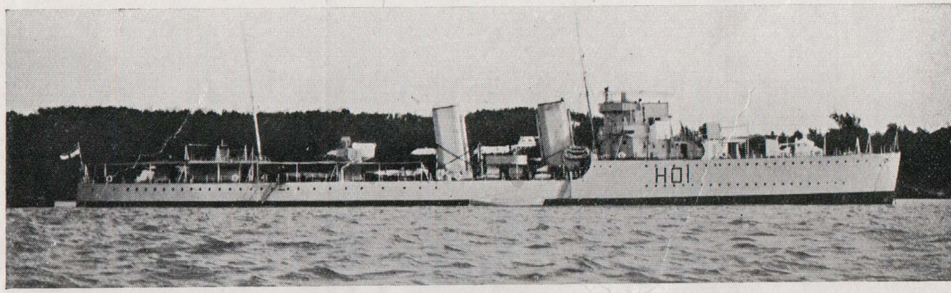


FRASER. 1932, R. Perkins, Esq.

***Fraser*** (ex-*Crescent*) and ***St. Laurent*** (ex-*Cygnet*), (both Vickers-Armstrongs, Sept. 29, 1931). Acquired from Ro Navy in 1937. Displacement: 1,375 tons. Complement: 145. Dimensions: 317¾ (*p.p.*), 326 (*w.l.*) × 33 × 8½ f (*mean*). Guns: **4**—4·7 inch, **7** smaller. Tubes: **8**—21 inch (quadrupled). Machinery: Parsons geared turbin S.H.P.: 36,000 = 35·5 kts. Boilers: 3 Admiralty 3-drum type. Oil fuel: 470 tons. Laid down in Dec., 1930 a completed in April, 1932. (Plan as British *Crusader* class).

1. 28.6.40 [illegible]

### 2 "Skeena" class.



SAGUENAY. 1932 *Photo, D. Trimingham, Esq.*

***Saguenay*** (July 11, 1930) and ***Skeena*** (October 10, 1930), ordered in January, 1929, from Messrs. Thornycr Displacement: 1320 tons. Dimensions: 322 × 32½ × 12 feet. Guns: **4**—4·7 inch, **2**—2 pdr. pom-pom, **5** M Tubes: **8** 21 inch (quadrupled). H.P. 34,000 = 35 kts. Machinery: Parsons geared turbines. 3 Thornyc boilers, with superheaters. Oil fuel: 380 tons. Complement, 138.

*Notes.*—These ships exceeded 37 knots on trials with ease, and their running was marked by almost complete abse of vibration. Similar to British "A" class, but specially strengthened to withstand ice pressure. Laid dow 1929 and completed in 1931. Cost, with armament, about £670,000.
(Plan as British *Acasta* class.)

2 25.10.44 Halm

## SAIL TRAINING SHIP.

**VENTURE** (June 9, 1937). Wooden Schooner.
Length: 110 feet (*w.l.*), 146 feet (*o.a.*).

## Canadian Government Vessels

These form a potential reserve for the Royal Canadian Navy in time of war, though administered during peace by the several Departments named below. Guns dismounted and in store.

*Department of Transport*

**ACADIA** (Swan Hunter, 1913). Steel. Displacement: 1,050 tons. Complement: 42. Dimensions: 170 × 33¾ × 19 feet (depth). Guns: 1—4 inch, 2—3 inch. Machinery: Triple expansion. H.P.: 1,200 = 12 kts. Coal: 260 tons. (Surveying Service, Atlantic).

**ARANMORE** (W. B. Thompson, Dundee, 1890). Iron. 1,170 tons *gross*. Dimensions: 241½ × 34 × 15½ feet (depth). Machinery: Triple expansion. H.P.: 1,500 = 13 kts. Coal: 230 tons.

**ARGENTEUIL** (Sorel, P. Q., 1916). Steel. 165 tons *gross*. Complement, 13. Dimensions: 94 × 21 × 7 feet. Coal: 48 tons.

**BELLECHASSE** (Kingston S.B. Co., 1912). Displacement: 576 tons. Dimensions: 142¼ × 27 × 12 feet (depth). Machinery: Triple expansion. H.P.: 1,000 = 15 kts. Oil fuel: 24 tons.

**BERENS, BIRNIE** (B.C. Yacht & Boat Builders Co., Victoria, 1921). Wood. 73 tons *gross*. Complement: 9. Dimensions: 66¼ × 18 × 9¾ feet (depth). Machinery: Semi-Diesel. B.H.P.: 100 = 8·5 kts. Fuel: 1,800 gallons.

**BERNIER** (ex-*Mardep*). (Davie S.B. & Repairing Co., Lauzon, Que., 1918). (Rebuilt, 1930). Steel. 317 tons *gross*. Complement: 19. Dimensions: 125 × 23 × 13½ feet (depth). Machinery: Triple expansion. I.H.P.: 500 = 9·5 kts. Coal: 100 tons.

**BRANT** (Sorel, Que., 1927). Steel. 285 tons *gross*. Complement: 19. Dimensions: 124½ × 23 × 12 feet (depth). Machinery: Triple expansion. I.H.P.: 350 = 10 kts. Coal: 68 tons.

**CARTIER** (Swan Hunter, 1910). Steel. Displacement: 850 tons. Complement: 34. Dimensions: 164 × 29 × 13 feet. Guns: 3—3 inch. Machinery: Triple expansion. I.H.P.: 830 = 12 kts. Coal: 150 tons.

**CITADELLE** (Davie S.B. & Repairing Co., 1932). Steel. 431 tons *gross*. Complement: 13. Dimensions: 120½ × 30 × 13½ feet (depth). Machinery: Triple expansion. I.H.P.: 1,200 = 13 kts. Oil fuel: 74 tons.

**DOLLARD** (Kingston S.B. Co., 1913). Steel. 761 tons *gross*. Dimensions: 178½ × 32 × 15¼ feet (depth). Machinery: Triple expansion. I.H.P.: 1,000 = 11 kts. Coal: 100 tons.

**DRUID** (Fleming & Ferguson, 1902). Steel. Displacement: 1,000 tons. Dimensions: 160 × 30 × 12¾ feet (depth). Machinery: Triple expansion. I.H.P.: 800 = 10 kts. Coal: 100 tons.

**ESTEVAN** (Collingwood S.B. Co., 1912). Steel. Displacement: 2,100 tons, 1,161 tons *gross*. Dimensions: 212 × 38 × 15¼ feet (depth). Machinery: Triple expansion. I.H.P.: 1,500 = 12·5 kts. Coal: 350 tons.

**GRENVILLE** (Polson Iron Works, 1915). Steel. 497 tons *gross*. Dimensions: 155 × 31 × 11 feet (depth). Machinery: Triple expansion. I.H.P.: 900 = 11·5 kts. Coal: 100 tons.

**LADY GREY** (Vickers, 1906). Steel. Displacement: 1,080 tons. 733 tons *gross*. Dimensions: 172 × 32 × 16 feet (depth). Machinery: Triple expansion. I.H.P.: 2,300 = 14 kts. Coal: 200 tons. (Icebreaker).

**LADY LAURIER** (Fleming & Ferguson, 1902). Steel. Displacement: 1,970 tons, 1,051 tons *gross*. Dimensions: 215 × 34½ × 17¼ feet. Machinery: Triple expansion. I.H.P.: 1,800 = 13 kts. Coal: 175 tons.

**LAURENTIAN** (ex-*King Edward*). (Cook, Welton & Gemmell, 1902). Steel. 355 tons *gross*. Dimensions: 149 × 24 × 11 feet (depth). Machinery: Triple expansion. I.H.P.: 520 = 11 kts.

**LILLOOET** (B.C.M.R. Co., 1908). Steel. 608 tons *gross*. Dimensions: 163 × 27 × 13 feet (depth). Machinery: Triple expansion. I.H.P.: 900 = 11·75 kts. Coal: 140 tons.

**MONTCALM** (Napier & Miller, 1904). Steel. Displacement: 3,270 tons, 1,432 tons *gross*. Dimensions: 245 × 40½ × 15¾ feet. Machinery: Triple expansion. I.H.P.: 3,600 = 14 kts. Watertube boilers. Coal: 425 tons.

**MURRAY STEWART** (Port Arthur, Ont., 1918). Steel. 234 tons *gross*. Complement, 14. Dimensions: 119 × 26 × 15½ feet. Speed: 10 kts. Coal: 150 tons.

**N. B. MCLEAN** (Halifax Shipyards, 1930). Steel. 3,254 tons gross. Complement: 49. Dimensions: 260 × 60¼ × 31 feet (depth). Machinery: Triple expansion. I.H.P.: 6,500 = 15 kts. Oil fuel: 1,322 tons. (Icebreaker).

**OCEAN EAGLE** (ex-*St. Arvans*), (Day, Summers & Co., 1919; rebuilt, 1927). Steel. 420 tons *gross*. Complement: 15. Dimensions: 135 × 29 × 14¾ feet (*mean* draught). Machinery: Triple expansion. I.H.P.: 1,200 = 11·5 kts. Coal: 221 tons.

**ST HELIERS** (Port Glasgow, 1919), (Re-built, St. John, N.B., 1930). Steel. 929 tons *gross*. Complement, 21. Dimensions: 190¼ × 21 × 16¼ feet. I.H.P.: 1,200 = 11¼ kts. Oil fuel: 110 tons.

**SAFEGUARDER** (ex-salvage vessel *Safeguard*). (Day, Summers & Co., 1914; rebuilt, 1929). Steel. 665 tons *gross*. Complement: 24. Dimensions: 160 × 29 × 15¾ feet (depth). Machinery: Triple expansion. I.H.P.: 1,350 = 13·5 kts. Coal: 110 tons.

**SAUREL** (Canadian Vickers, 1929). Steel. 1,252 tons *gross*. Complement: 23. Dimensions: 200 × 42 × 19¾ feet (depth). Machinery: Triple expansion. I.H.P.: 3,000 = 14 kts. Oil fuel: 370 tons.

**VARENNES** (Sorel, 1911). Wood. 187 tons *gross*. Complement: 12. Dimensions: 85½ × 22¼ × 9½ feet (depth). Machinery: Compound. I.H.P.: 200 = 9 kts. Coal: 50 tons.

**VERCHERES** (Polson Iron Works, 1901; rebuilt, 1928). Steel. 157 tons *gross*. Complement: 14. Dimensions: 104 × 26¼ × 11 feet (depth). Machinery: Compound. I.H.P.: 60 = 8 kts. Coal: 50 tons.

**WILLIAM J. STEWART** (Collingwood Shipyards, 1932). Steel. 1,295 tons *gross*. Complement: 56. Dimensions: 214 × 36 × 15 feet (depth). Machinery: Triple expansion. I.H.P.: 1,200 = 12 kts. Coal: 300 tons.

Note.—*Acadia*, *Cartier*, *Lillooet* and *Wm. J. Stewart* are now operated by Dept. of Mines and resources.

*Department of Lands (Manitoba)*

**BRADBURY** (1915). Steel. Displacement: 500 tons. Complement: 13. Dimensions: 151 × 27½ × 8 feet. Machinery: Triple expansion. (Employed on Fisheries Patrol, Lake Winnipeg).

*Department of Fisheries*

FISHERY PATROL VESSELS—

**ARLEUX, ARRAS, GIVENCHY** (all 1918). Steel. 357 tons *gross*. Complement: 18. Dimensions: 130 × 25 × 13 feet. Guns: 1—3 inch. Machinery: Triple expansion. I.H.P. 480 = 10 kts. Coal: 140 tons.

**MALASPINA** (Dublin Dockyard Co., 1913). Steel. Displacement: 850 tons. Complement: 40. Dimensions: 162¼ × 27 × 13 feet (depth). Guns: 1—6 pdr. Machinery: Triple expansion. I.H.P.: 1,350 = 14·5 kts. Coal: 200 tons.

*Royal Canadian Mounted Police (Marine Section)*

CUSTOMS PATROL VESSELS—

**ADVERSUS, ALACHASSE** (1931). Composite. 156 tons *gross*. Complement: 14. Dimensions: 112 × 19 × 11 feet (depth). Diesel engines. B.H.P.: 365.

**FLEURDELIS** (Canadian Vickers, 1929). Steel. 316 tons *gross*. Complement: 23. Dimensions: 165 × 21 × 11 feet (depth). Winton engines of 1,800 B.H.P.

**LAURIER, MACDONALD** (1937). 201 tons *gross*. Dimensions: 113 × 21 × 10½ feet (depth).

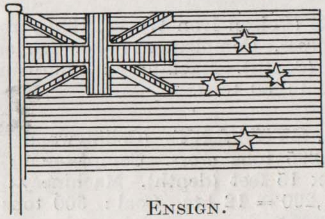
**ULNA** (Day, Summers & Co., 1909). Steel. 167 tons *gross*. Complement: 17. Dimensions: 125½ × 18½ × 10 feet (depth). Machinery: Triple expansion.

(There are 8 smaller vessels, also used in Customs Patrol.)

*Department of National Defence*

**PREVENTOR** Sister ship to *Fleurdelis*, above.

# NEW ZEALAND.



ENSIGN.

*Commander-in-Chief*—H. E. The Rt. Hon. Viscount Galway G.C.M.G., D.S.O., O.B.E.

## Naval Board.

*President :* The Minister of Defence, the Hon. John George Cobbe

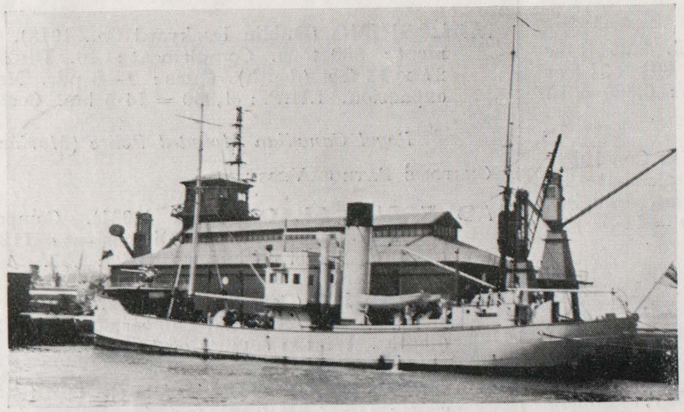
*First Naval Member :* Rear-Admiral the Hon. E. R. Drummond, M.V.O.

*Second Naval Member and Chief Staff Officer :* Captain R. D. Oliver, D.S.C., R.N.

*Naval Secretary :* Paymaster Commander E. L. Tottenham, R.N.

## Minesweeping Trawler.

[illegible] - Bellona
Black Prince

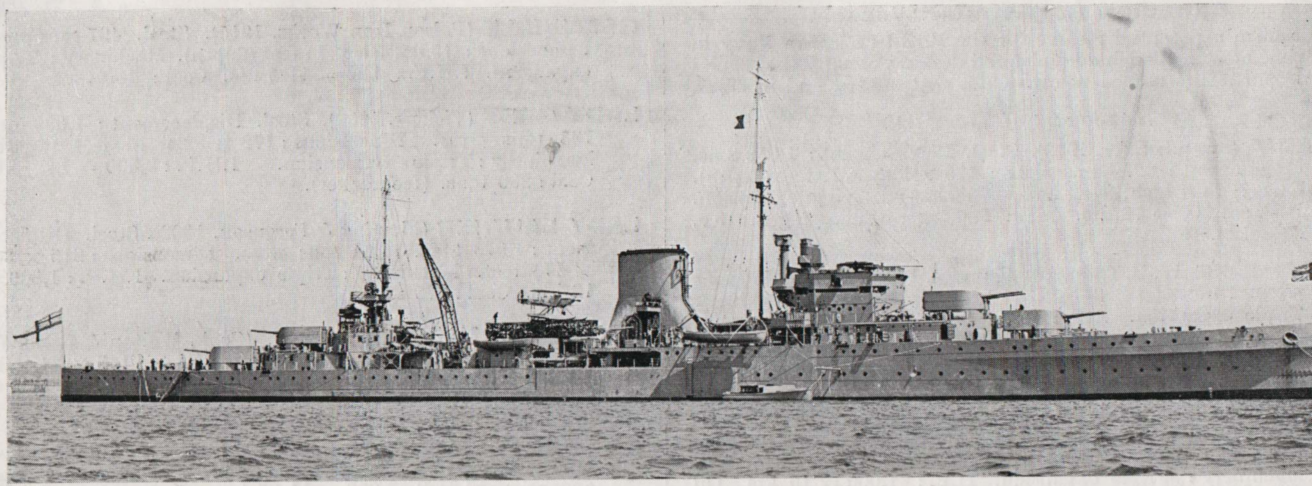


1937, *Nautical Photo Agency.*

**WAKAKURA** (ex-*T.R.*1). "Castle" type, similar to *Coronet*, in British Navy section.

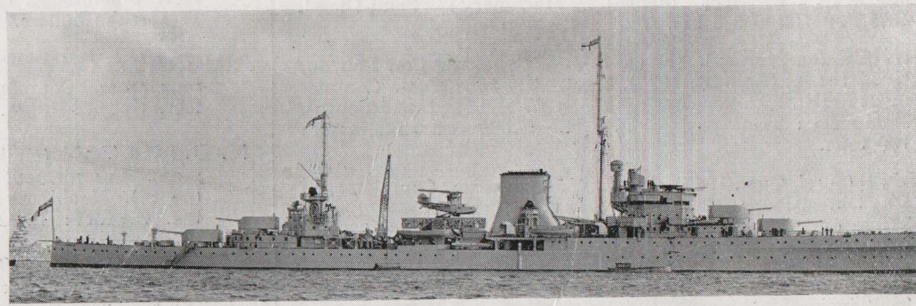
## Fleet Tug.

**TOIA** (ex-*St. Boniface*, ex-*St. Fergus*). Details as "Saint" class, in British Navy Section.



ACHILLES.

1934 *Photo, R. Perkins*



LEANDER

1937, *Fighting*

**ACHILLES** (1932), **LEANDER** (1931), 7,030 and 7,140 tons respectively. Guns: 8—6 4—4 inch AA., 4—3 pdr., 8 smaller. 1 aircraft carrier. (Full details of both ships w found in Royal Navy section, on earlier pages. Both are lent to the New Zealand Go ment by the Admiralty, the former paying for their annual maintenance on the Sta

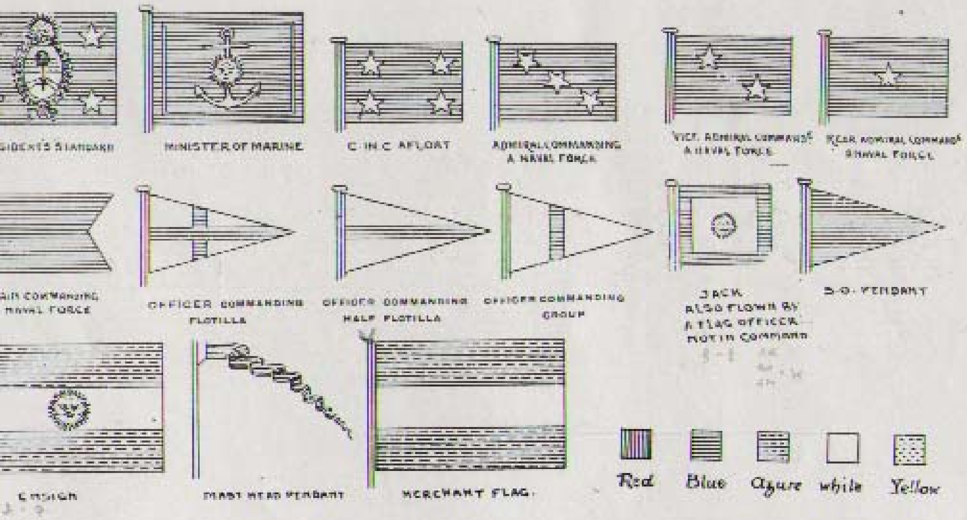
## Sail Training Vessel.

**VIKING.** 67 feet ketch, attached to Training Depot at Auckland.

*Note.*—Sloops **LEITH** and **WELLINGTON** are under control of the Admiralty wh this station for duty in the islands of the S. Pacific.

# ARGENTINA.

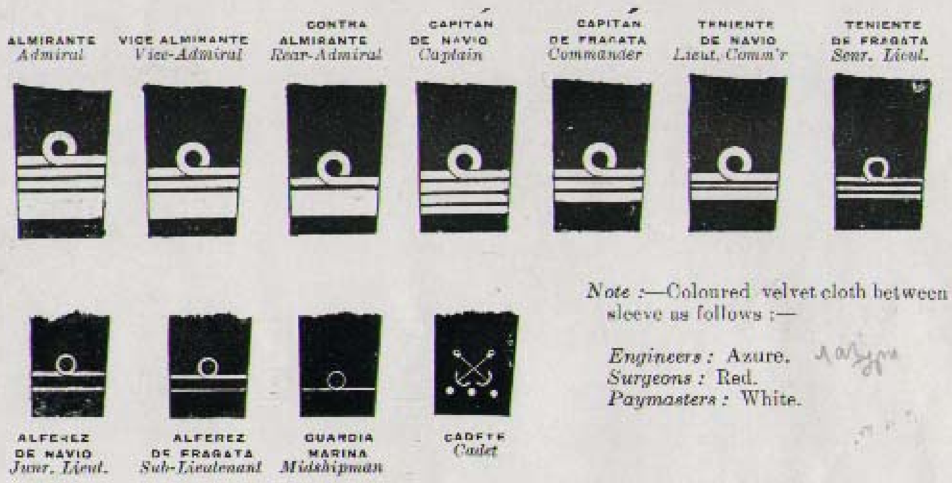
## Flags.


SIDENT'S STANDARD
MINISTER OF MARINE
C IN C AFLOAT
ADMIRAL COMMANDING A NAVAL FORCE
VICE ADMIRAL COMMANDG A NAVAL FORCE
REAR ADMIRAL COMMANDG NAVAL FORCE
AIR COMMANDING NAVAL FORCE
OFFICER COMMANDING FLOTILLA
OFFICER COMMANDING HALF FLOTILLA
OFFICER COMMANDING GROUP
JACK ALSO FLOWN BY A FLAG OFFICER NOT IN COMMAND
S.O. PENDANT
ENSIGN
MAST HEAD PENDANT
MERCHANT FLAG.
Red
Blue
Azure
white
Yellow

| Notation. | Nominal Calibre. | | Maker. | Length in Calibres. | Muzzle Velocity. | Weight A.P. Projectile. | Max. penetration against K.C. with capped A.P. at | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | 5000 yards. | 3000 yards. |
| | inches | c/m. | | calibres. | ft. secs. | lbs. | inches. | inches. |
| HEAVY | 12 | 30·5 | B | 50 | 2900 | 870 | 19 | 23 |
| MEDIUM | 10 | 25·4 | A | 40 | 2207 | 500 | 7 | 9¼ |
| | 9·4 | 24 | K | 35 | {2300<br>2133} | 352 | 4½ | 6 |
| | 7·5 | 19 | A | 52 | 3116 | 200 | ... | ... |
| LIGHT | 6 | 15 | B | 50 | 2600 | 105 | ... | 8¼ |
| | 6 | 15 | A | 45 | 2500 | 100 | 3 | 4½ |
| | 6 | 15 | A | 40 | 2200 | 100 | 3 | 3¾ |
| | 4·7 | 12 | A | 45 | 2570 | 45 | ... | 2¾ |
| | 4·7 | 12 | A | 40 | 2230 | 45 | ... | ... |
| | 4 | 10·16 | B | 50 | 2996 | 30 | ... | ... |

In the Maker's column A = Armstrong; B = Bethlehem; K = Krupp.
There are also Italian models of 4 inch and 3·9 inch guns.
The above details of Argentine Naval Ordnance have been officially revised.

## Insignia of Rank.


ALMIRANTE
Admiral
VICE ALMIRANTE
Vice-Admiral
CONTRA ALMIRANTE
Rear-Admiral
CAPITAN DE NAVIO
Captain
CAPITAN DE FRAGATA
Commander
TENIENTE DE NAVIO
Lieut. Comm'r
TENIENTE DE FRAGATA
Senr. Lieut.
ALFEREZ DE NAVIO
Junr. Lieut.
ALFEREZ DE FRAGATA
Sub-Lieutenant
GUARDIA MARINA
Midshipman
CADETE
Cadet

*Note* :—Coloured velvet cloth between sleeve as follows :—

*Engineers :* Azure.
*Surgeons :* Red.
*Paymasters :* White.

## Dockyards and Arsenals.

**DÁRSENA NORTE.** (Buenos Aires) Dry docks : (Eastern) 590½ × 65½ × 25 feet, and (Western) 492 × 65½ × 25 feet.

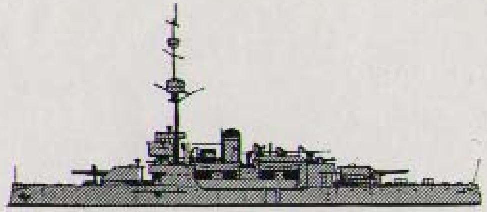
**PUERTO BELGRANO** (Bahia Blanca). Dry docks : (1) 657 × 84 × 32½ft., (2) 683 × 114 × 43 ft.
**RIO SANTIAGO.** Dock, 672 × 114 × 36 feet. Two floating docks. (1) 1500 tons lift; (2) 300 tons lift.

## Mercantile Marine.

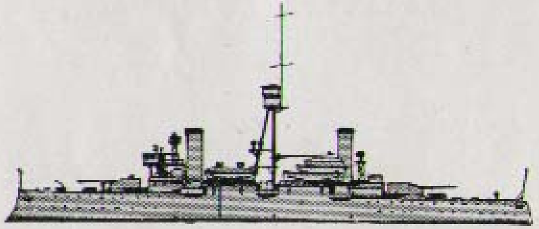
(From "Lloyd's Register," 1937 figures.)
333 vessels of 318,530 tons, gross tonnage.

## General Notes.

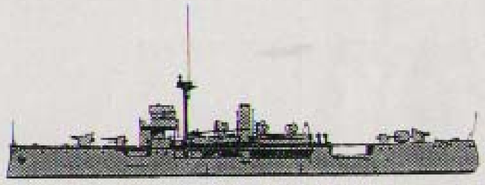
*Minister of Marine :* Capitán de Navio Eleazar Videla.
*Chief of Naval Staff :* Contraalmirante Leon L. Scasso.
*Chief of Naval Commission (Europe) and Naval Attaché, London :* Cntraalmirante Mario Fincat
*Personnel :* 500 officers, 11,000 men.
*Form of Address :* Capitán de Navio ——, A.R.A. ——.



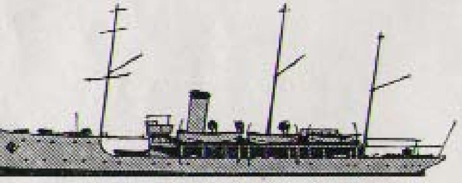
Independencia. Libertad.



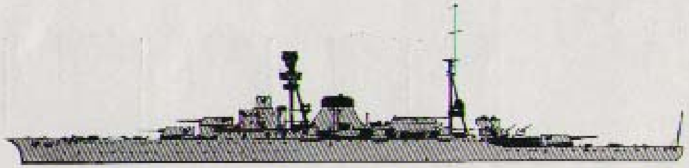
Belgrano. Pueyrredon.



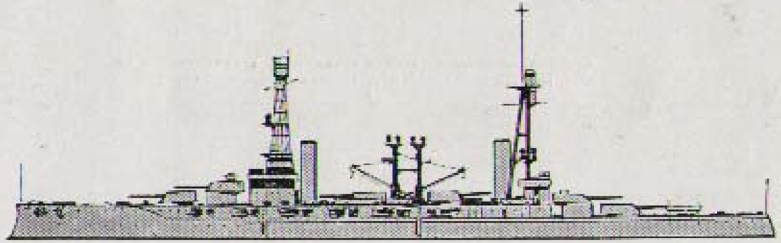
Parana. Rosario.



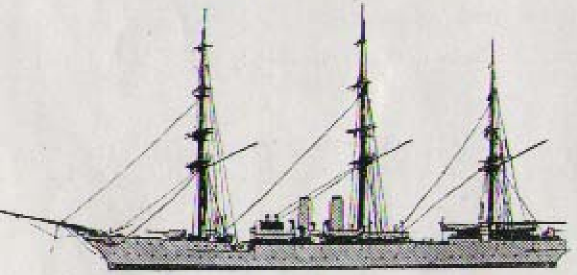
San Juan.
San Luis.



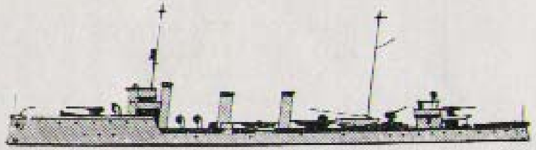
Almirante Brown.
25 de Mayo.



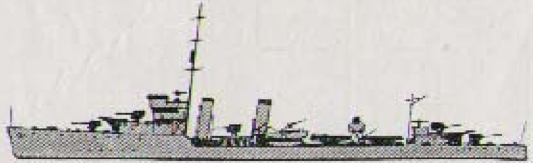
Moreno.
Rivadavia.



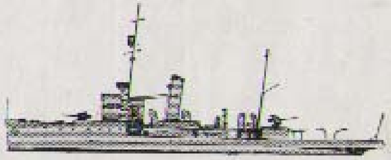
Presidente Sarmiento.



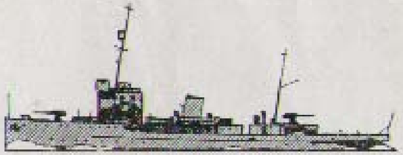
Cordoba.
La Plata.



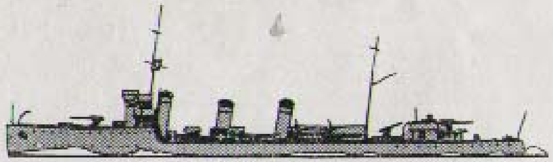
Mendoza *class; also* Cervantes *Class.*
(Thicker funnels.)



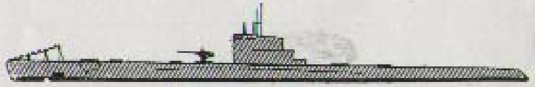
Bathurst *Class.*



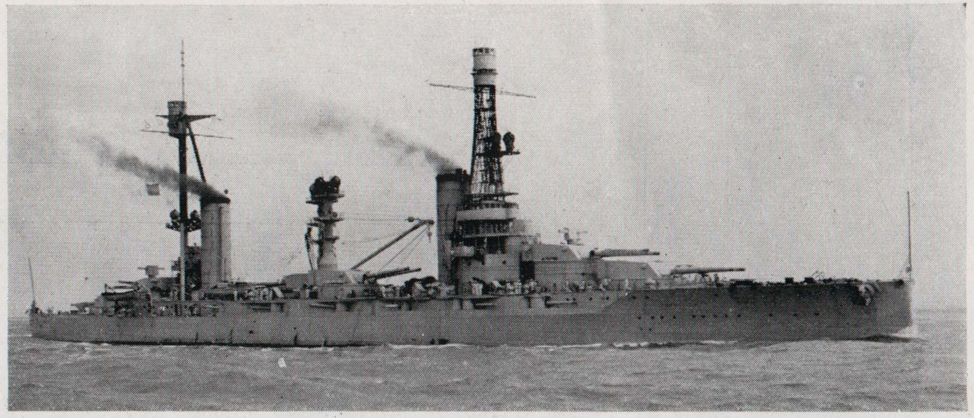
Bouchard *class.*



Catamarca.
Jujuy.



Santa Fé *Class.* (3).



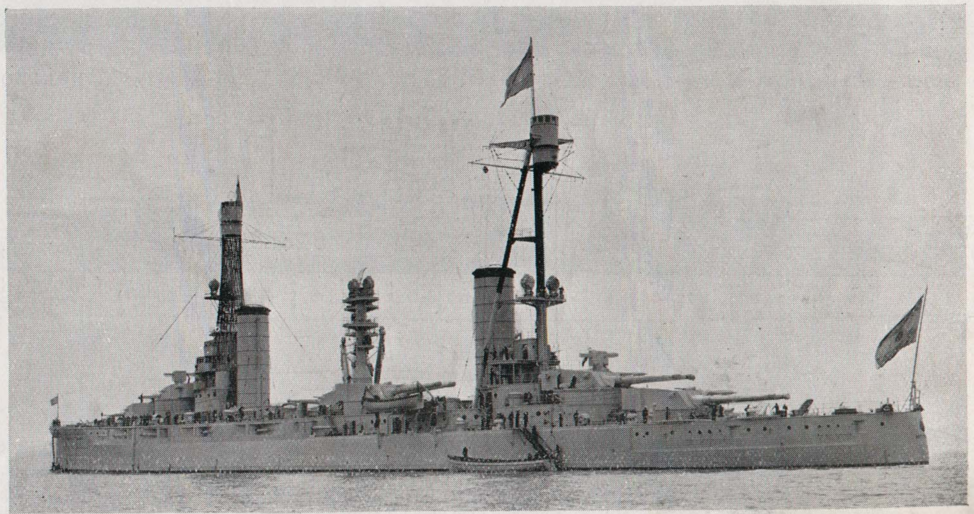
MORENO. 1937, *Official.*

## New Construction.

The current Naval Programme, approved by Parliament in Sept., 1926, involved the expenditure of 75,000,000 gold pesos (£15,000,000) over the ten years 1927-1936. In addition to the extension of present dockyard facilities on the River Plate and at Puerto Belgrano, and the opening of a new yard at Mar del Plata, the construction of a number of ships to replace obsolete tonnage was provided for ; but it has not been found possible to complete this programme in ten years.

So far, 2 cruisers, 5 destroyers, 3 submarines, 4 despatch vessels and 2 surveying vessels have been completed. A third cruiser, 7 destroyers and 5 despatch vessels are completing.

(For particulars, see following page).



MORENO. 1937, *Fighting Ships.*

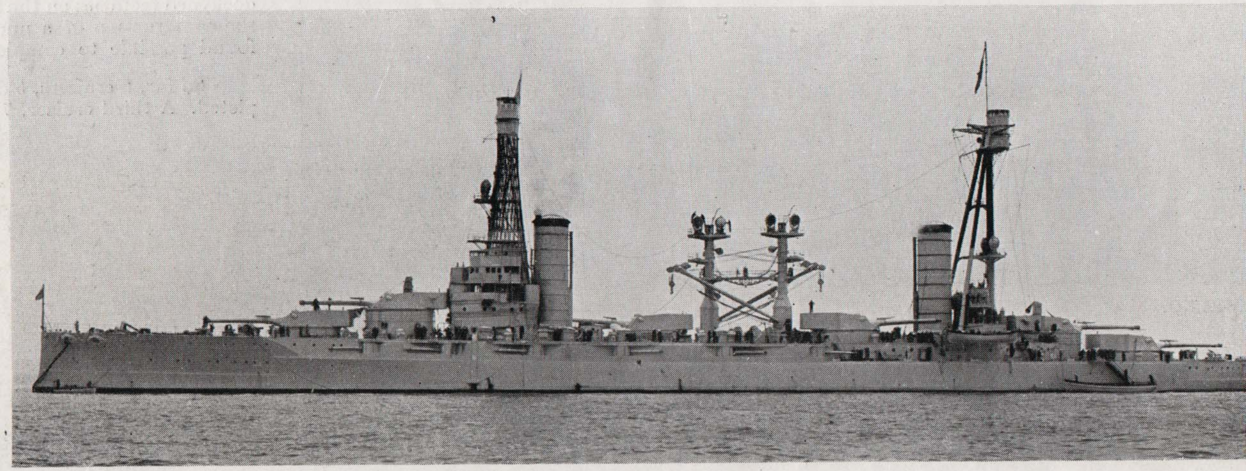
## **RIVADAVIA** (26 Aug., 1911) & **MORENO** (23 Sept., 1911).

*Normal* displacement, 27,940 tons. *Full load*, 30,600 tons. Complement, 1215.

Length (*w.l.*), 577½ feet. Beam, 95 feet. *Max.* load draught, 28 feet. Length (*over all*), 585 feet.

Guns (Bethlehem):
**12**—12 inch, 50 cal.
**12**—6 inch, 50 cal.
**4**—3 inch AA.
**4**—3 pdr.
**6** M.G.
(4 landing).
Torpedo tubes (21 inch):
**2** *submerged*
(broadside).

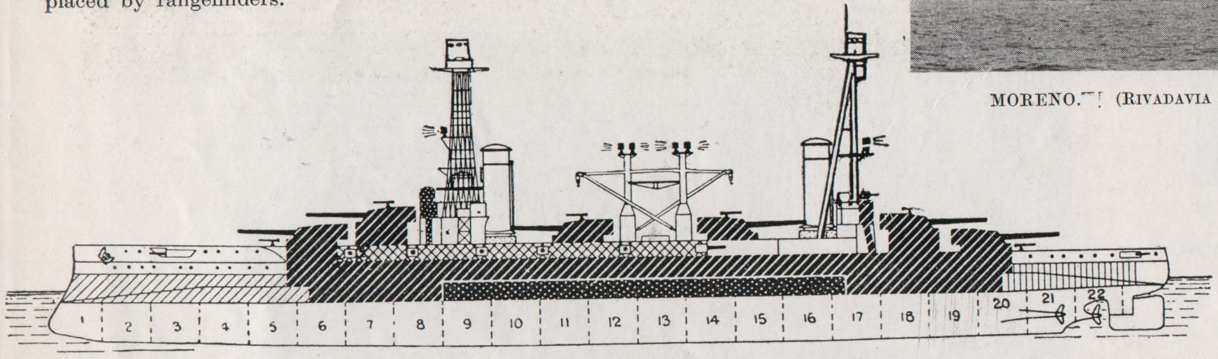
Armour (Krupp): (*See notes.*)
11″—8″ Belt (amidships) { ● ▨
5″ Belt (bow) N.C.......... ▨
4″ Belt (stern) N.C. ......... ▥
3″ Deck (slopes) ...........
9″—8″ Side above belt.. ▨
12″—9″ Big gun turrets .. ▨
6″ Secondary battery (N.C.) ▩
12″ Conning Tower (forward) ●
9″ Do. ( aft. ) ▨
Total weight: 7600 tons.

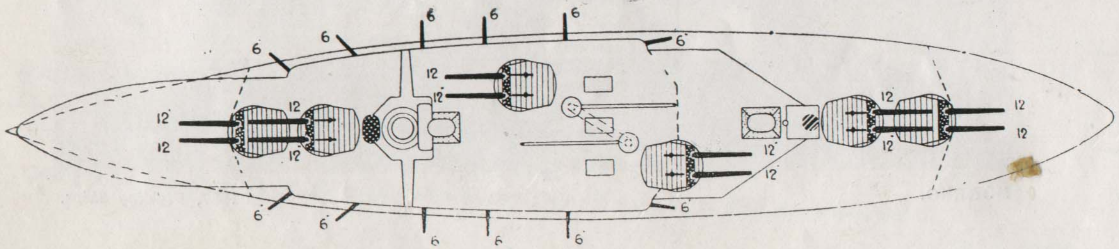


MORENO. (RIVADAVIA same appearance). 1937, *Fighting*

Machinery: Curtis geared turbines. 3 screws. S.H.P. 45,000 = 23 kts.
Boilers: 18 Babcock (converted to oil burning, 1924-25). Oil: 3,600 tons.
*Nominal* radius: 3930 miles at full speed. 8500 miles at 10 kts

*Note to plan:*—
3 pdr. guns shown on top of B and X turrets, since replaced by rangefinders.





*Gunnery Notes.*—Heights of barbettes over normal draught w.l.: No. 1, 29¼ feet; No. 2, 37¼ feet (echelon), and No. 5, 29 feet; No. 6, 20 feet; 6 inch guns, 19½ feet above w.l. Arcs of fire: Nos. 1 and 6, 270°; Nos. 2 and 5 (super-firing), 300°; Nos. 3 and 4 (echelon) 180° own beam and Director controls (U.S.) type installed during 1924—25 refits. Rates of fire are reported to b rounds a minute; 6 inch, 8; 4 inch, 12.

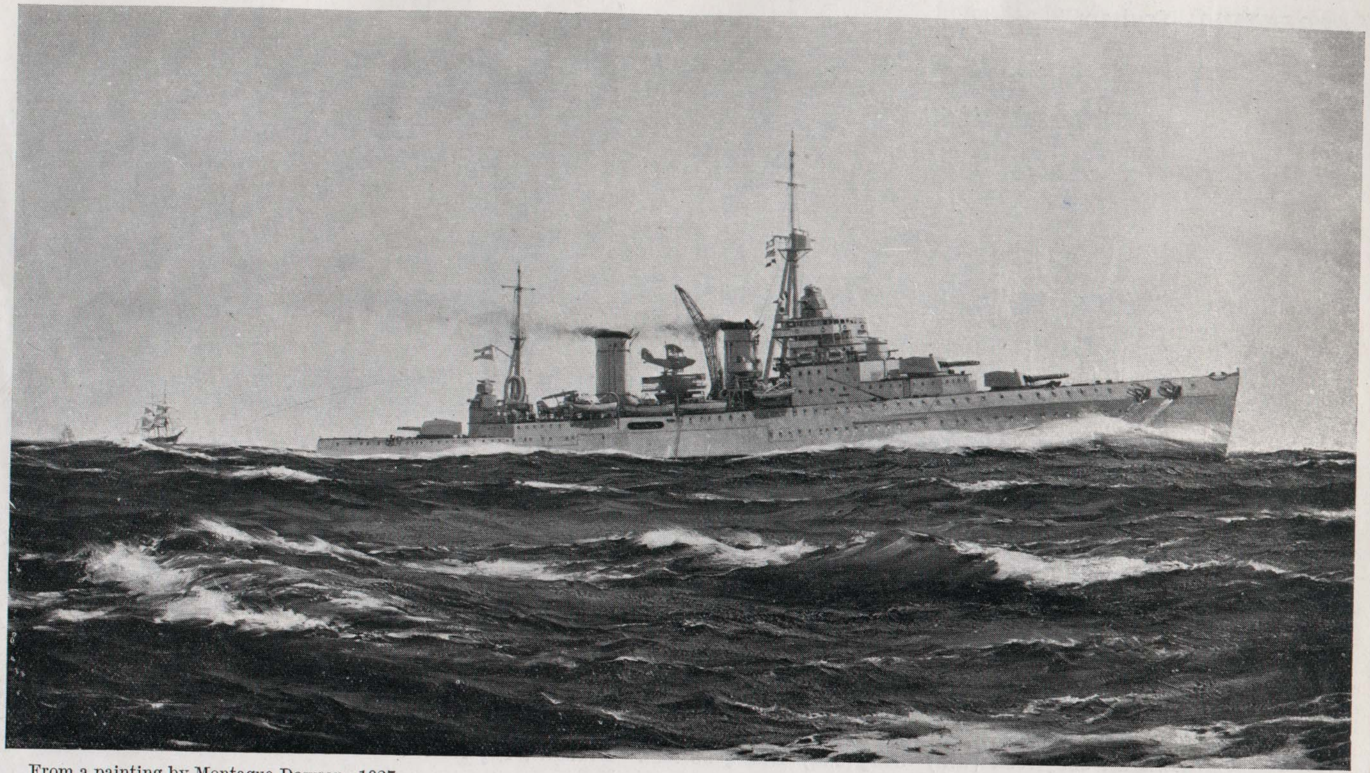
*Armour Notes.*—Main belt is 8 feet deep, 4¾ feet above water-line and 3¼ feet below same at normal 240 feet long, but 11″ section is only 2 feet deep from top edge of belt, and then tapers t (under-water) edge. Belt under end barbettes is 10″ tapering to 5″ as main belt. Upper long, 9″ lower edge, 8″ top edge, 6″ battery above this. Funnel bases, 1½″ nickel steel for 15 fe Protective decks, 1½″ upper, 3″ lower. Two Director stations behind upper belt at bases of C.T. tubes. Barbettes: bases are 9″ where exposed. Shields to these: 12″ port-plate, 9″ sides, 11

*Anti-Torpedo Defence.*—3″ longitudinal wing bulkheads in way of machinery and magazine spaces. flats under magazines, boilers, and engine rooms. Total weight, 680 tons (included in 7, weight of armour given above). 12—38-inch searchlights.

*General Notes.*—Built under 1908 Programme. Large refits in U.S.A., 1924—25.

*Electric Engineering Notes.*—Electric installation at 220 volts.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* | *Boile* |
|---|---|---|---|---|---|---|
| *Rivadaria*<br>*Moreno* | Fore River Co.<br>N.Y. Shipbuilding | Fore River Co. | May. '10<br>July, '10 | Dec., 1914<br>Mar., 1915 | 39,750 = 22·5 | Babco<br>Babco |



From a painting by Montague Dawson, 1927.

*Copyright Frost & Reed, Ltd., London and Bristol.*

## LA ARGENTINA (March 16, 1937).

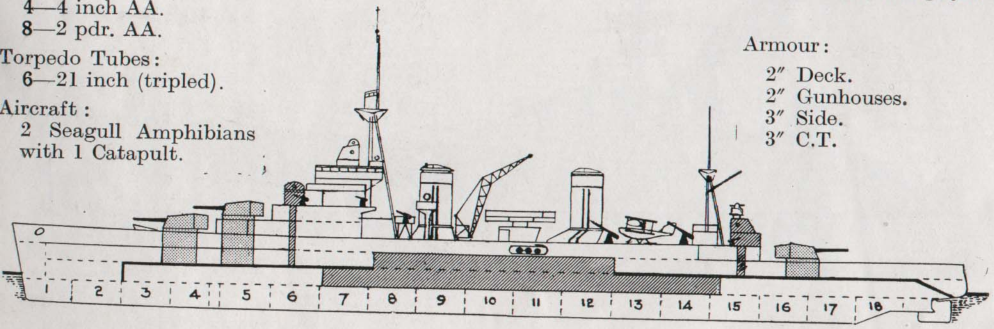
isplacement: 6,000 tons *standard*, 7,000 tons full load. Complement, 56 + 60 cadets. Dimensions: 450 (*p.p.*), 500 (*o.a.*) × 56 × 16½ feet (*max.*)

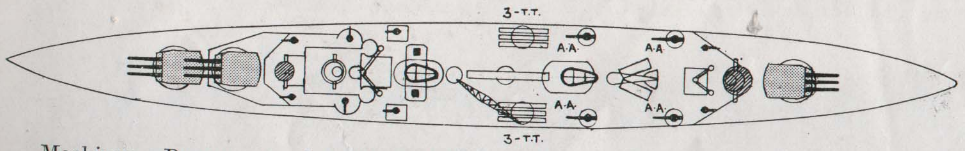
Guns:
- 9—6 inch.
- 4—4 inch AA.
- 8—2 pdr. AA.

Torpedo Tubes:
- 6—21 inch (tripled).

Aircraft:
- 2 Seagull Amphibians with 1 Catapult.

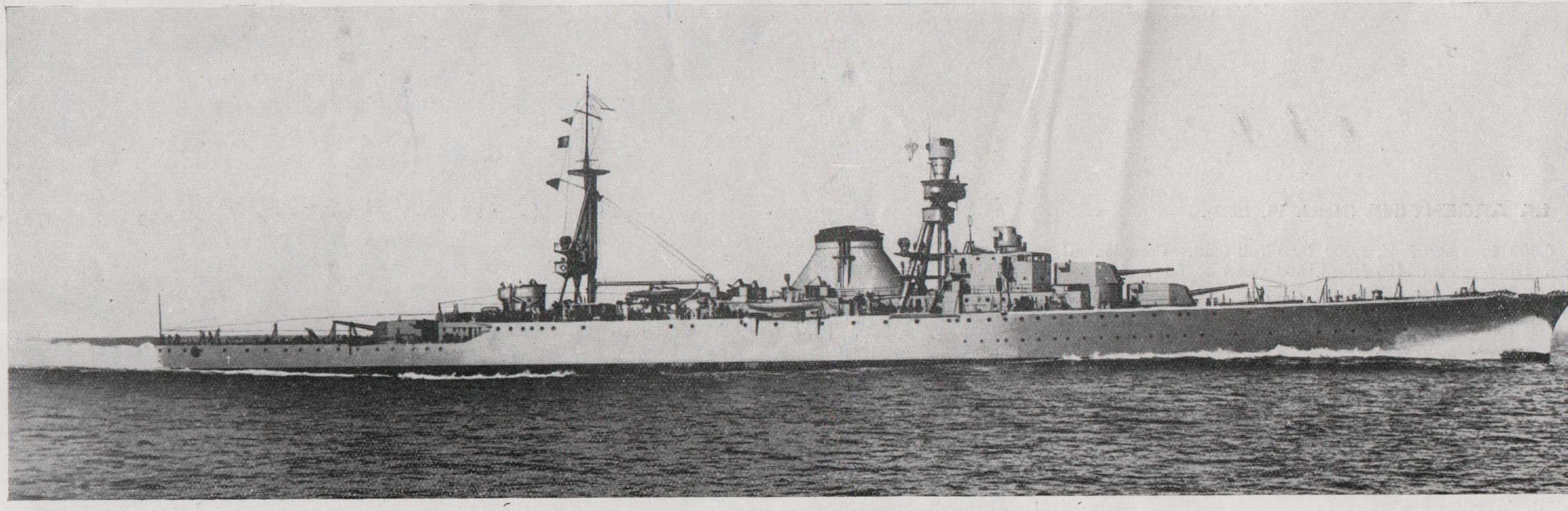
Armour:
- 2″ Deck.
- 2″ Gunhouses.
- 3″ Side.
- 3″ C.T.





Machinery: Parsons geared turbines. 4 shafts. S.H.P.: 60,000 = 31 kts. Boilers: 4 Yarrow working pressure 300 lbs. Oil fuel: 1,000 tons.

*Note.*—Laid down by Vickers-Armstrongs, Ltd., at Barrow, 1935, to replace *Presidente Sarmiento*. Cost, 6,000,000 gold pesos (about £1,750,000).



ALMIRANTE BROWN.

1931 *Photo, favour of Count C. de Grav*

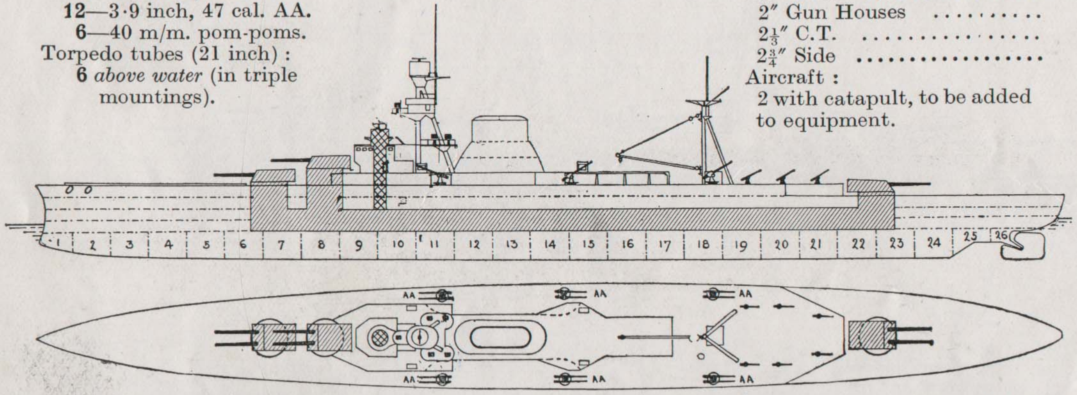
## ALMIRANTE BROWN (Aug. 25th, 1929). VEINTICINCO DE MAYO (Aug. 11th, 1929)

"Standard" displacement, 6800 tons. (*Full load about* 8600 tons.) Complement, 600.

Length, 533¼ feet. (w.l.) 545¾ (o.a.) Beam, 58 feet. Draught, 16¼ feet.

Guns :
6—7·5 inch, 52 cal.
12—3·9 inch, 47 cal. AA.
6—40 m/m. pom-poms.
Torpedo tubes (21 inch) :
6 *above water* (in triple mountings).

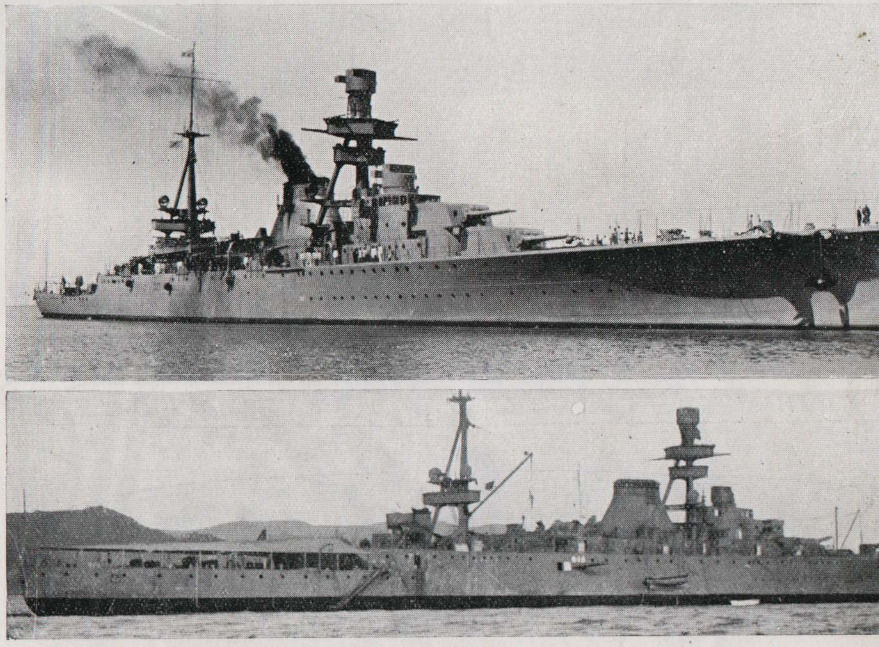
Armour :
1″ Deck ................
2″ Gun Houses ..........
2⅓″ C.T. ...............
2¾″ Side ..................
Aircraft :
2 with catapult, to be added to equipment.



Machinery : Geared Parsons turbines. 6 Yarrow boilers. S.H.P. 85,000 = 32 kts. Oil fuel : 1800 tons. 2 screws.

*General Notes.*—Both laid down 1927, *25 de Mayo* by Orlando at Leghorn, *Alm. Brown* by Odero at Sestri Ponente. Cost £1,225,000 each. Rig shown in plan was that originally proposed, but subsequently modified as in photos.

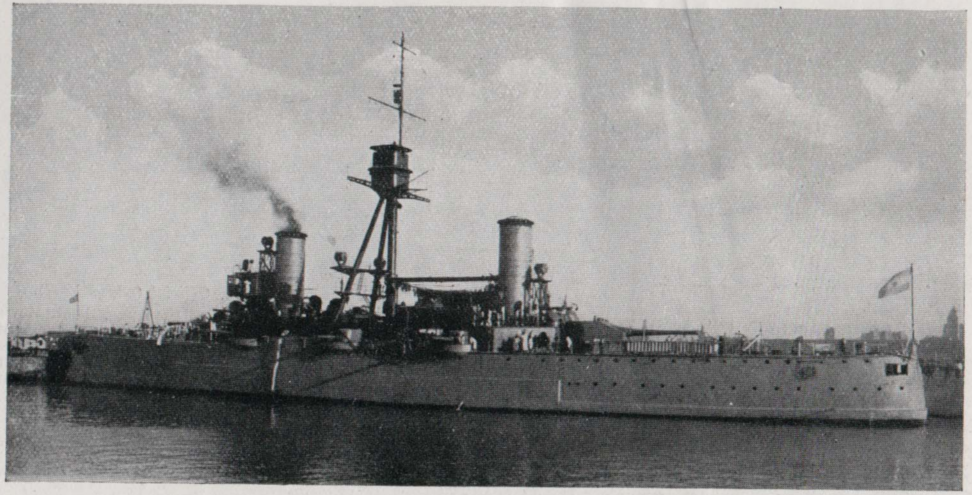
*Gunnery Notes*--AA. guns are in twin mountings similar to those in Italian *Trento* type.



VEINTICINCO DE MAYO.

1932 *Photos,*

## 2 ex-Cruisers (*classed as Coast Defence Ships*).



BELGRANO. 1930 *Photo, courtesy of Ministry of Marine.*

**BELGRANO** (ex-*Varese*), (July 25, 1897), Orlando, Leghorn.

**PUEYRREDON** (ex-*Giuseppe Garibaldi*), (Sept. 25, 1897), Ansaldo, Sestri Ponente.

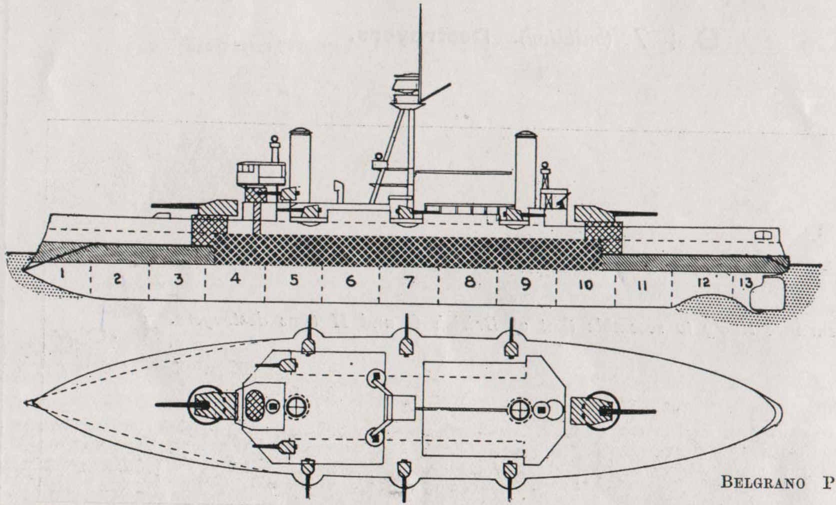
Displacement: 6,100 tons (normal).
Dimensions: 328 × 59·7 × 23·5 feet.

Guns: *Belgrano*: 2—10 inch, 8—4·7 inch, 4—6 pdr., 2—37 mm. A.A.
*Pueyrredon*: 2—10 inch, 8—6 inch, 4—6 pdr., 1—37 mm. AA.

Armour: Terni. Belt 6″–3″. Deck 1½″–2″. Lower deck side 6″. Battery 6″. Barbettes 6″. Gunhouses 6″. C.T. 6″.

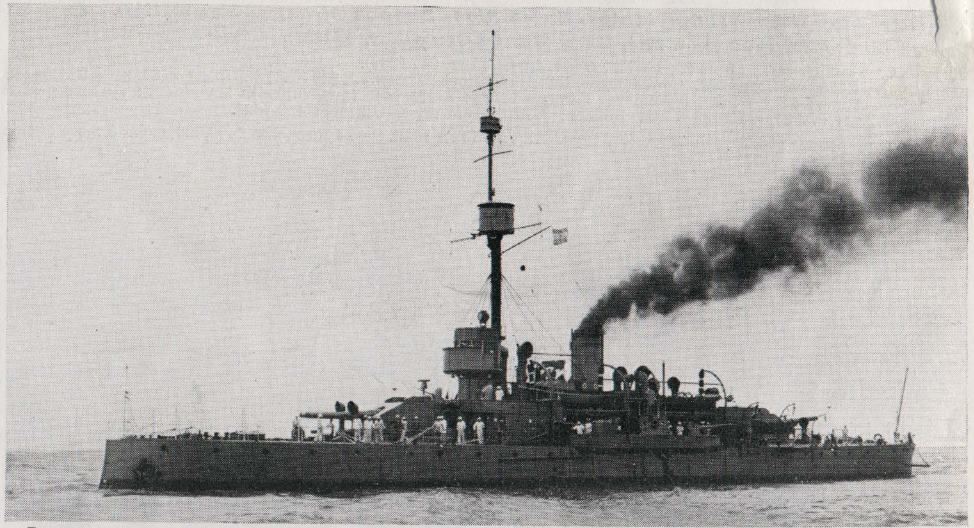
Machinery: 2 sets T. Exp. Boilers: 8 Yarrow. H.P. 13,000 = 18 kts. Oil fuel: 1,000 tons.

*Notes*—These old cruisers are officially rated as coast defence ships. They have been converted to oil fuel and had main deck battery removed, tripod mast fitted and Director firing installed. *Belgrano* completed 1930 by Odero. *Pueyrredon* refitted at Puerto Belgrano; sister ships *Garibaldi* and *San Martin* scrapped 1934.



BELGRANO PUEYRREDON.

## 2 Coast Defence Ships. (Classed as *Canoneros*).



LIBERTAD. 1936 *Official* (*added* 1937)

**INDEPENDENCIA** (1891), **LIBERTAD** (ex-*Nueve de Julio*), (1890). Both built by Laird's, Birkenhead. Displacement, 2,595 tons. Complement, 196. Dimensions: 240 (*p.p.*) × 43 × 13 feet (*max.*). Guns: 2—9·4 inch, 35 cal. (Krupp), 4—4·7 inch, 40 cal. (Armstrong), 4—3 pdr. Armour (compound): 8″ Belt (amidships), 2″ Deck (flat on belt), 8″ Bulkhead (forward), 6″ Bulkhead (aft), 8″ Barbettes and bases, 5″ Shields to big guns (fronts), 4″ Conning tower. Machinery: Compound vertical. 2 screws. Boilers: 4 double cylindrical. Designed H.P. 3,000 = 13 kts. Oil fuel: 170 tons. (Converted to burn oil, 1925–27).

## 9 + 7 *(building).* Destroyers.

*Appearance likely to resemble that of British G and H type destroyers.*

3 *Vickers-Armstrongs (Barrow)*: **Corrientes, Entre Rios, Buenos Aires,** (all Sept. 21, 1937).

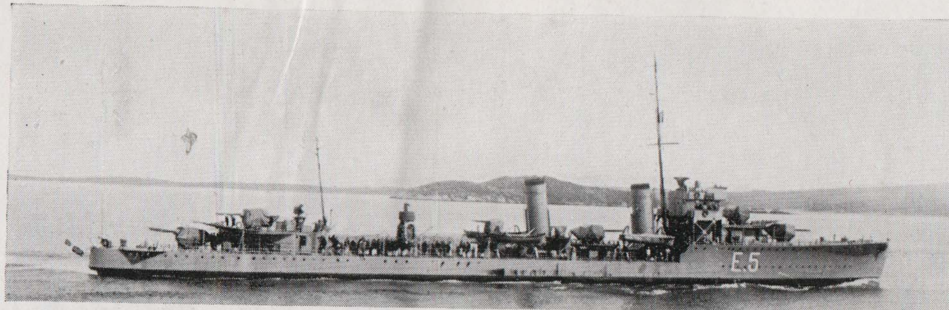
2 *Cammell Laird*: **Misiones** (Sept. 23rd, 1937). **Santa Cruz** (Nov. 3, 1937).

2 *Clydebank*: **San Juan** (June 24, 1937). **San Luis** (Aug. 24, 1937).

Displacement; 1,375 tons standard. Complement, 150. Dimensions; 312 (*p.p.*), 320 (*w.l.*) 323 (*o.a.*) × 33 × 8½ feet (*mean* draught). Guns: **4**—4·7 inch, **8** smaller. Torpedo tubes: **8**—21 inch (quadrupled). Machinery: Parsons geared turbines. S.H.P.: 34,000 = 35·5 kts. Boilers: 3, of 3-drum type. Oil fuel: 450 tons.

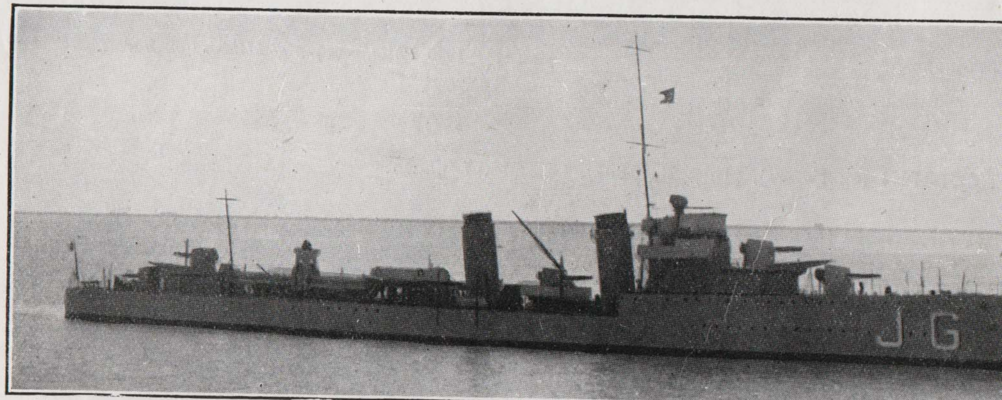
*Notes.*—Generally similar to British *Greyhound* type. All laid down 1936. Cost approaches £400,000 each. 5 more of this type are projected.

## Destroyers—*continued.*



TUCUMAN. 1936, *Official* (*added* 1937).

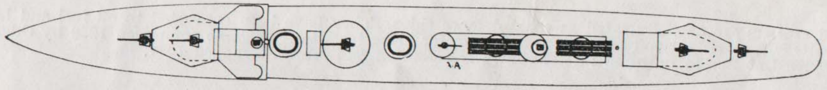
3 *White*: **Mendoza** (July 18th, 1928), **Tucuman** (Oct. 16th, 1928) and **La Rioja** (Jan. 26th, 1929). All laid d in June, 1927 for completion in June, 1929. Displacement, (*standard*) 1570 tons; (*full load*) 2120 tons. Complem 160. Dimensions: 332¼ (*w.l.*), 335 (*o.a.*) × 31¾ × 12½ feet. Guns (Vickers-Armstrong): **5**—4·7 inch, **1**—3 inch AA., 2 pdr. Torpedo tubes: **6**—21 inch, in triple deck mountings. 2 sets Parsons turbines, with single reduc gearing. Steam supplied at 250 lbs. from 4—3 drum water-tube boilers. H.P. 42,000 = 36 kts. 38 kts. m tained for 6 hours on trials by *Mendoza* and *Tucuman*; *La Rioja* touched 39·4 kts. without running machin in excess of designed power. Oil fuel: 540 tons. Radius of action: 4,500 miles at 14 kts.



JUAN DE GARAY 1928 *Photo, Capt. Don Mateo Mille, R. S*

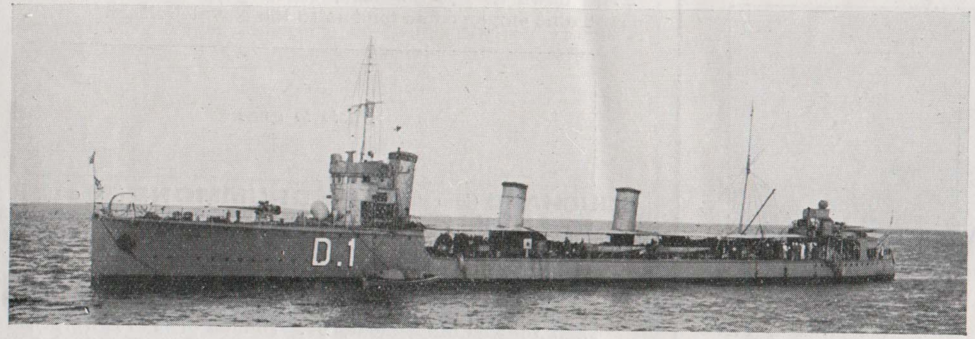
**Cervantes** (ex *Churruca*, Cadiz, June 26th, 1925), **Juan de Garay** (ex-*Alcala Galiano*, Cartagena, Nov. 3rd, 192 Purchased from Spanish Government, 1927. Displacement, 1650 tons *normal* (2087 tons *full load*). Dimension 320 × 31¾ × 10½ feet. Guns: **5**—4·7 inch, **1**—3 inch AA., **4** M.G. Torpedo tubes: **6**—21 inch, in triple deck moun ings. **2** D.C. carried. Machinery: 2 sets Parsons geared turbines. S.H.P.: 42,000 = 36 kts. Oil fuel: 540 ton Radius of action: 4,500 miles at 14 kts. Complement: 175.

*Note.*—Design generally resembles that of British *Scott* class.



MENDOZA and CERVANTES *classes.* *Plan by courtesy of Messrs. J. Samuel White & Co., Ltd.*

## Destroyers.—*Continued.*

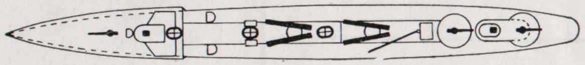


CATAMARCA. 1933 *Photo, Official.*

2 (*German*) type: **Cordoba** (Schichau, Nov. 1910). **La Plata** (Germania, Jan., 1911). 1000 tons. 295 × 29½ × 7¾ feet. Armament: 3—4 in. (Beth.), 2–37 mm. AA. 4—21 inch. tubes. 1 D.C. Thrower. Curtis (A.E.G.) turbines. Boilers: 5 Schulz-Thornycroft, altered to burn oil. Designed S.H.P. 28,000 = 26·5 kts. Oil: 200 tons. Endurance: 2700 miles at 15 kts., 715 miles at full speed. Trials (*max.*): *Cordoba*, 34·2; *La Plata*, 34·7.

2 (*German*) type: **Catamarca** (Schichau, Jan., 1911), **Jujuy** (Germania, March, 1911). 997 tons. 288⅜ × 7¼ × 28 feet. Armament: 3—4 inch (Beth.), 2—37 mm. AA., 4—21 inch tubes. 1 D.C. Thrower. Curtis (A.E.G.) turbines. Boilers: Schulz-Thornycroft, altered to burn oil. Designed S.H.P. 28,000 = 27·2 kts. Oil: 220 tons. Endurance: 3000 miles at 15 kts., 800 miles at full speed.

*Appearance Note.—Cordoba* and *La Plata* have ram bow.



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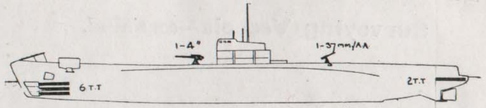
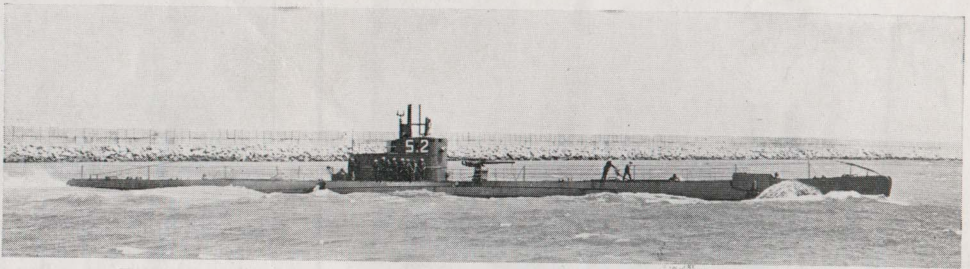
## 3 Submarines.



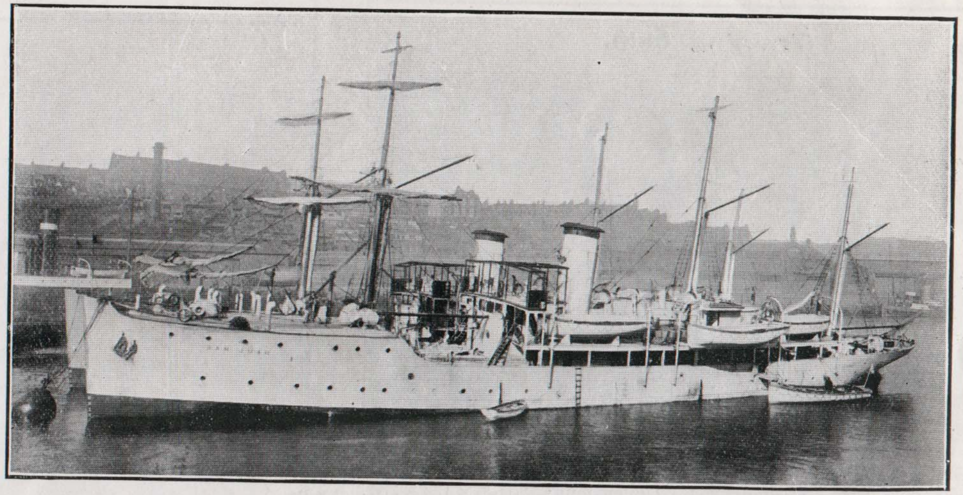


SANTIAGO DEL ESTERO. 1936, *Official*, (*added* 1937).

3 *Cavallini* type: **Salta,** (Jan. 17, 1932), **Santa Fé,** (July 11, 1931), **Santiago del Estero.** (March 28, 1932). Ordered from Cantiere Navale Franco Tosi, Taranto, Oct., 1927. Displacement $\frac{775}{920}$ tons. Dimensions: 220 (*w.l.*), 226⅓ (*o.a.*) × 21 × 13 feet. 2 Tosi 6-cylinder Diesels. H.P.: 3,000 = 17·5 kts. *surface*. B.H.P.: 1,400 = 9 kts. *submerged*. Armament: 1—4 inch, 1—37 mm. AA. guns, 8—21 inch tubes. Cost £206,000 each, fully equipped. General design resembles Italian *Mameli* type.

*Note.*—Are differentiated by numerals printed on conning towers.

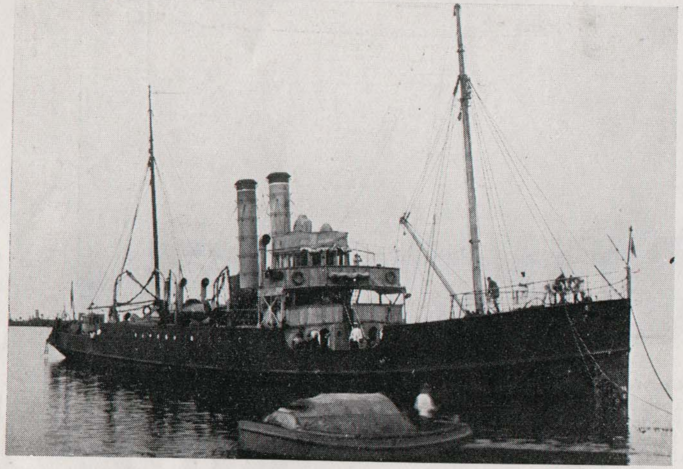
## 3 Surveying Vessels



SAN JUAN (SAN LUIS behind her.) 1928 *Photo, by courtesy of Messrs. R. & W. Hawthorn, Leslie & Co., Ltd.*

**SAN JUAN** (Sept. 27th, 1927). **SAN LUIS** (Oct. 26th, 1927). Both built by Hawthorn, Leslie & Co., Ltd., Hebburn-on-Tyne. Delivered Feb. 1928. Displacement, 970 tons. Dimensions: 207 (*o.a.*) × 33 × 11 feet draught. Complement, 92. Guns: Nil. Machinery: Single shaft Hawthorn-Werkspoor Diesel engine. B.H.P. 700 = 12 kts. 1 screw. 1 single ended Scotch boiler to supply steam to auxiliary machinery. Oil fuel 85 tons. Radius of action: 4000 nautical miles.

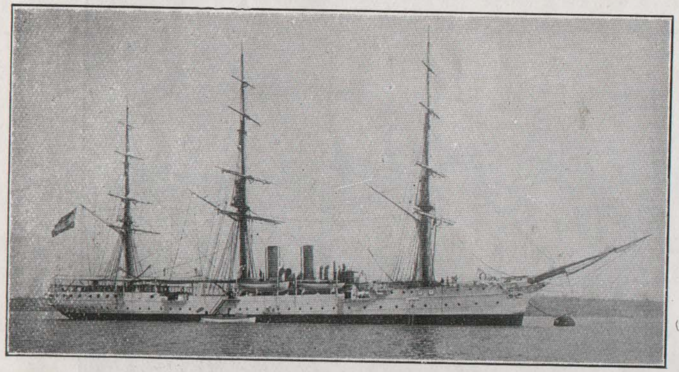
## Surveying Vessels—*continued.*



1936, *Official.*

**ALFEREZ MACKINLAY** (Netherlands, 1914). 783 tons. Dimensions: $193\frac{3}{4} \times 28\frac{1}{4} \times 13$ feet. Guns: Nil. H.P. 520 = 10 kts. Used as Lighthouse Inspection Vessel.

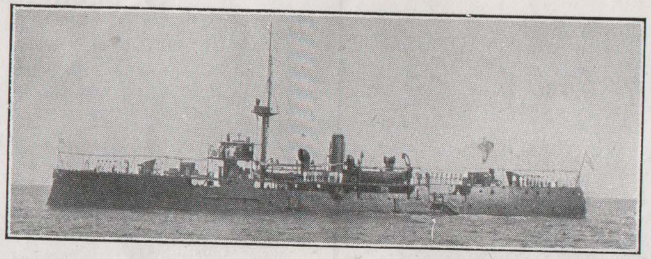
## Training Ship.



**PRESIDENTE SARMIENTO** (1898). Built at Birkenhead. 2850 tons. Complement 294. Dimensions: $251\frac{5}{12} \times 43\frac{1}{4} \times 23\frac{1}{4}$. Guns: **3**—4·7 inch, 45 cal.; **1**—4 inch, **2**—6 pdr., **2**—3 pdr. Torpedo tubes: **3** *above water*. Designed H.P. 2800=15 kts. Coal: 330 tons Boilers: 1 Niclausse, 1 Yarrow, 2 cylindrical single-ended. Radius: 4500 miles at 10 kts.

*Notes.*—Sheathed and coppered. Has accommodation for 400 boys. Refitted by builders, 1926.

## River Monitors.



1918 *Photo, Official.*

**PARANA** (April, 1908) & **ROSARIO** (July, 1908). Both built by Armstrong. Displacement, 1055 tons. Complement, 142. Length, 240 feet. Beam, $32\frac{2}{3}$ feet. Draught, $7\frac{5}{12}$ feet. Guns: 2—6 inch Howitzers, **6**—3 inch, **2**—37 mm. AA., **2** landing. Armour: 3″ Belt (amidships), $1\frac{1}{2}$″—1″ Deck, 3″ Conning tower. H.P 1600=15 kts. 2 Yarrow boilers. 2 screws. Coal: 120 tons. *Nominal* radius, 2400 miles at $10\frac{1}{2}$ kts.

*Note.*—These two vessels are remarkable in that their main armament consists of howitzers, 13 calibres in length.

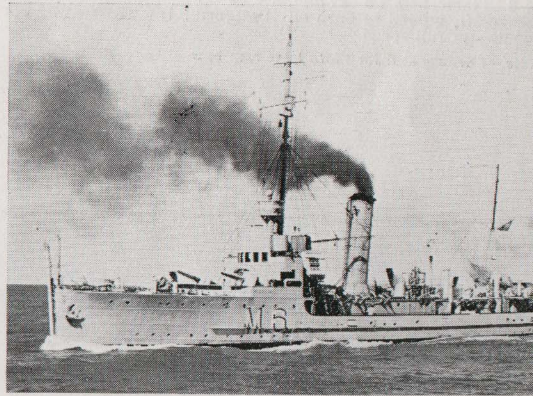
## 17 Despatch Vessels.

2 laid down at Rio Santiago, 1937. Displacemer
To be employed as tenders to the Naval Colleg

*Photo to come*

**BOUCHARD** (March 20, 1936), **DRUMMOND**
**GRANVILLE** (Jan. 27, 1937), **SPIRO**
all built at Rio Santiago Naval Yard;
**SEAVER,** both by Hansen & Puccini at
**PARKER,** by Sanchez Shipyard, San Ferna
down 1935–36. Standard displacement, 450 to
520 tons. Complement, 62. Dimensions: 16
(*o.a.*) × $23\frac{1}{2}$ × $6\frac{1}{2}$ feet (*max.* draught). Guns
47 cal., **2**—40 mm. A.A., **2** D.C. Machinery:
2-cycle Diesels. B.H.P.: 2,000 = 16 kts. Oil
Radius of action, 3,000 miles at 10 kts.

*Note.*—These are the first Argentine warships to be built in loca
are named after distinguished naval officers.



PINEDO. 1936, *Official*

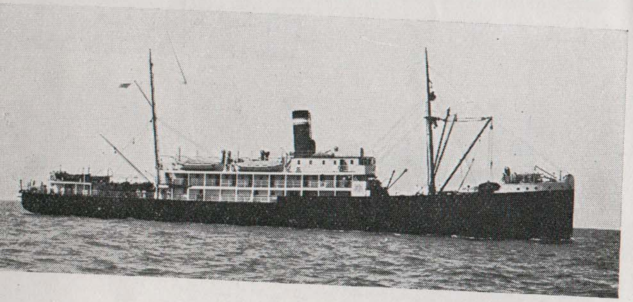
**BATHURST** (ex-*M* 1), **JORGE** (ex-*M* 3), **KIN**
**MURATURE** (ex-*M* 5), **PINEDO** (ex-*M*
(ex-*M* 8), **THORNE** (ex-*M* 9), **GOLONDRIN**
All built in Germany, 1916–19. Former G
sweepers, purchased by the Argentine Govern
for use as despatch vessels, and since converted
Displacement: 500 tons. Complement: 50.
184 (*w.l.*), 192 (*o.a.*) × $24\frac{1}{4}$ × $7\frac{1}{2}$ feet (*max.* dra
**3**—3 inch. Machinery: 2 sets vertical tripl
1 shaft. I.H.P.: 1,850 = 16 kts. Boilers: 2
fuel: 105 tons.

*Notes*—*Segui* serves as Diving Tender, *Golondrina* as Admiral
named after distinguished Argentine naval officers. *Py* scr
foundering in dock; and *Fournier* removed from effective li

## **Transports** (*Transportes*).

(Tonnage given is gross in each case.)

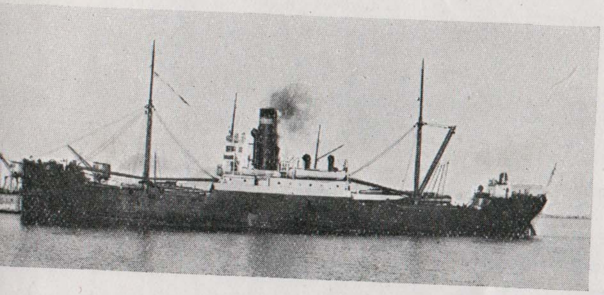
he construction of a new transport has been authorized, 1,000 tons displacement. Will probably be built by Hansen & Puccini.



1932 *Photo, Official.*

**ACO** (ex-*Rio Claro*, 1923), **PAMPA** (ex-*Rio Bueno*, 1923) (both built by Danziger Werft, Danzig). 1100 tons. Dimensions : 273 × 37 × 24 feet. H.P. 1500 = 11 kts.

*Note.*—*Chaco* serves as Submarine Depot Ship.

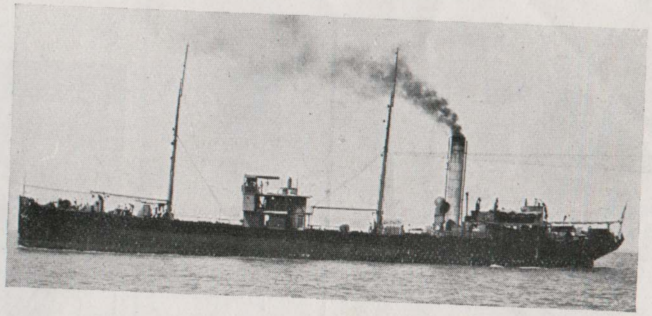


1932 *Photo, Official.*

**RICA** (ex-*Lake Hector*, 1920). 2686 tons. Dimensions : 2 × 43½ × 24 feet. H.P. 1520 = 9·5 kts.

**AGONIA** (Stelling, 1925). 1,350 tons. Dimensions : 3½ × 27 × 13 feet. H.P. 446=9·5 kts.

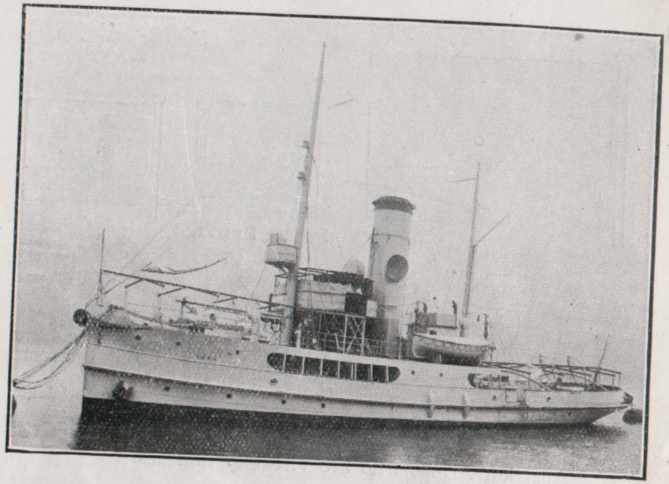
## **Oiler** (rated as Transport).



1932 *Photo, Official.*

**MINISTRO EZCURRA** (Grangemouth Dockyard Co., Grangemouth, 1914). 2600 tons. Dimensions : 250 × 40 × 18¾ feet. H.P. 1243 = 10½ kts.

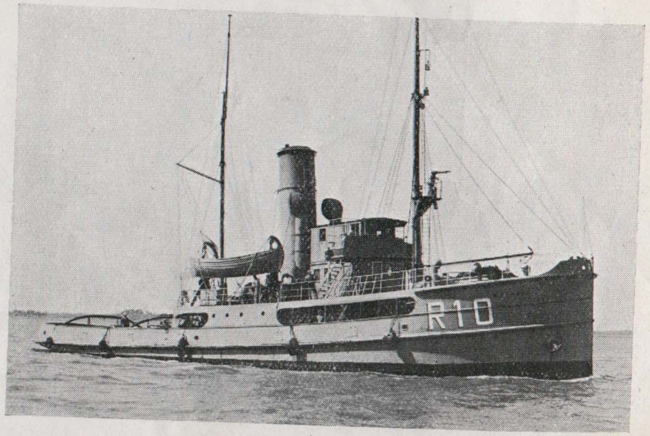
## **Tugs** (*Remolcadores*).



TOBA.

1928 *Photo, by courtesy of Builders.*

**MATACO** (Jan. 24th, 1928), **TOBA** (Dec. 23rd, 1927). Both built by Hawthorn Leslie. (Completed March, 1928). 339 tons *gross*. Dimensions : 130½ (*p.p.*), 137 (*w.l.*) × 28½ × 13½ feet. H.P.: 1100 = 12 kts. 2 screws. Oil fuel.

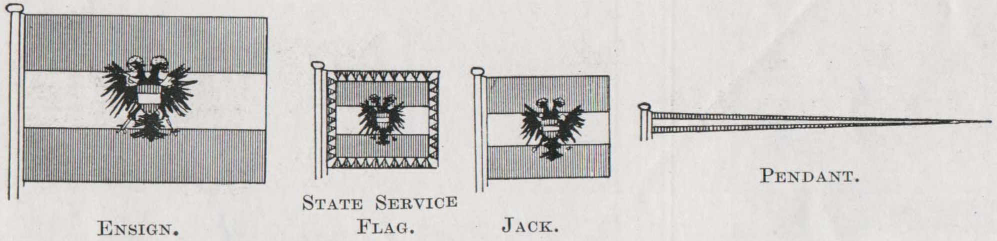


1932 *Photo, Official.*

**ONA, QUERANDI** (Thornycroft, 1913). 345 tons *gross*. Dimensions : 130 × 28 × 12 feet. H.P.: 1200 = 12 kts.

**AZOPARDO** (ex-*Barstow*, Bethlehem Co., 1919). 437 tons *gross*. Dimensions : 164 × 27½ × 14 feet. H.P. 1800 = 14 kts.

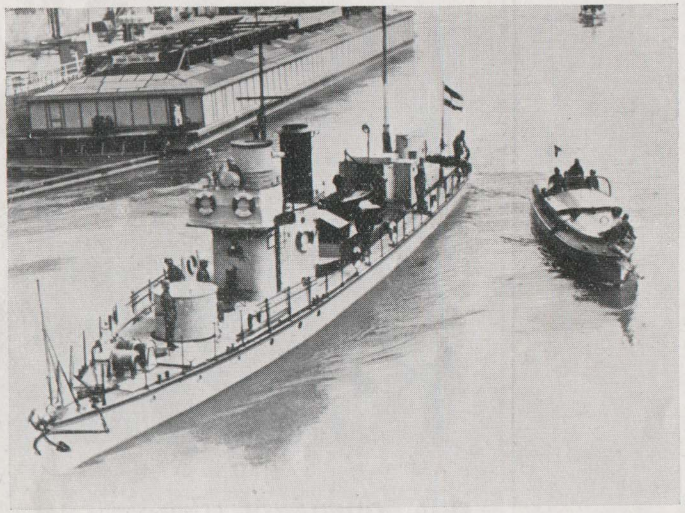
# AUSTRIA



*Minister of Defence :* Dr. Kurt von Schuschnigg.

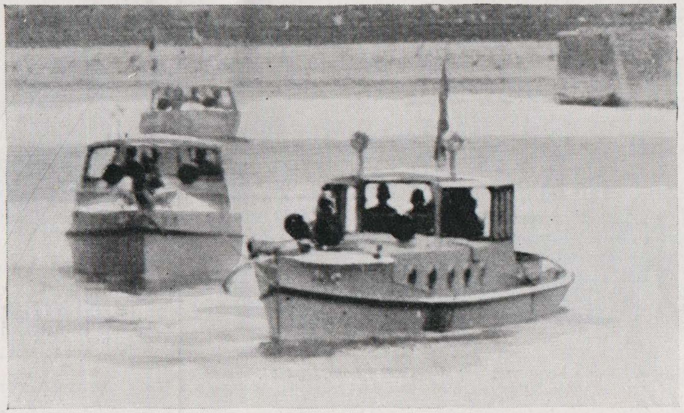
All the following vessels are manned by personnel from the Tegetthoff Pioneer Battalion of the Austrian Army, who are virtually marines.

## River Patrol Vessel

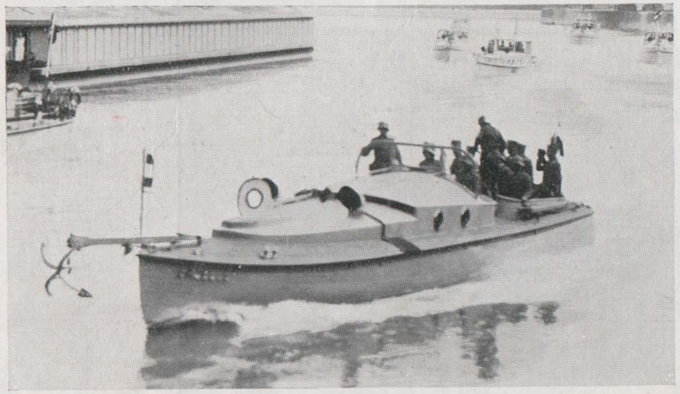


**BIRAGO** (ex-Hungarian *Siofok*, ex-Austro-Hungarian *Czuka*). Laid down Jan. 1915 as patrol vessel "K" at the Ganz-Danubius Shipyard, Budapest. Completed and commissioned March 1, 1916. Purchased by Austria in Aug. 1929. Displacement, 60 tons. Complement, 27. Dimensions : 118 × 15 × 2⅔ feet. Protected by bullet-proof belt of chrome steel. Guns : **1**—70 mm., 26 cal., 4 M.G. Machinery : Reciprocating. I.H.P. 800 = 12 kts.

## Motor Launches



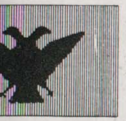
**KREMS, MURR, SALZACH, ENNS, DRAU** (1933-35). Steel. Dimensions : × 2½ ft. 2 M.G. 2 sets Diesels ; 2 shafts. H.P., 200. Complement, 6.



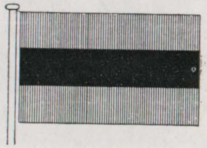
**GAZELLE.** Of similar design to above vessels, but 30 × 7½ × 2 feet.

There are also several steel launches of single screw type. Dimensions : 21¾ × 7½ × 1⅔ feet 1 motor. Complement, 7.

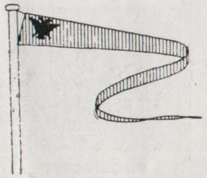
# ALBANIA.



ENSIGN.



MERCANTILE MARINE.

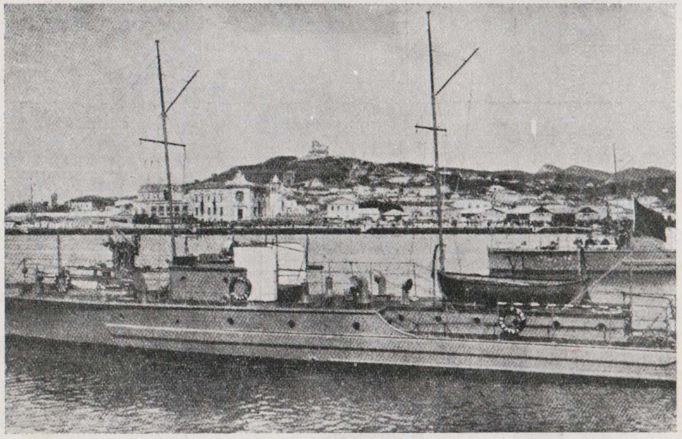


PENDANT. *field = red*
*device = black*

*Commander of the*
*nal Defence: General X. H. Araniti*

*Naval C.-in-C.*
*Captain E. Taddei*

## 4 Motor Patrol Boats.

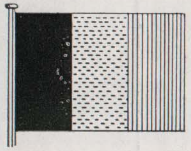


SARANDA (*Vlone* in background). Added 1936.

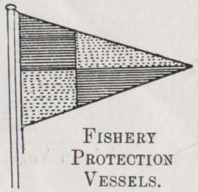
***IE, SARANDA, DURRES, VLONE.*** Built at Venice (S.V.A.N.), 1926–27.
splacement: 46 tons. Complement: 10. Dimensions: 80 × 12½ × 6¼ ft. Guns: 1-3 inch, 2 M.G.
I.P. 450 = 17 kts

# BELGIUM.

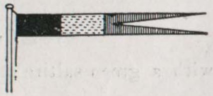
### Flags.



Black ■
Yellow ▨
Red ▥

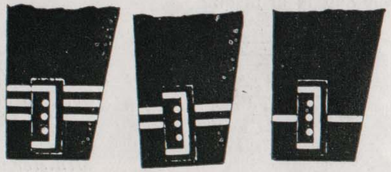


FISHERY PROTECTION VESSELS.



OTHER STATE-OWNED SHIPS.

### Uniforms.



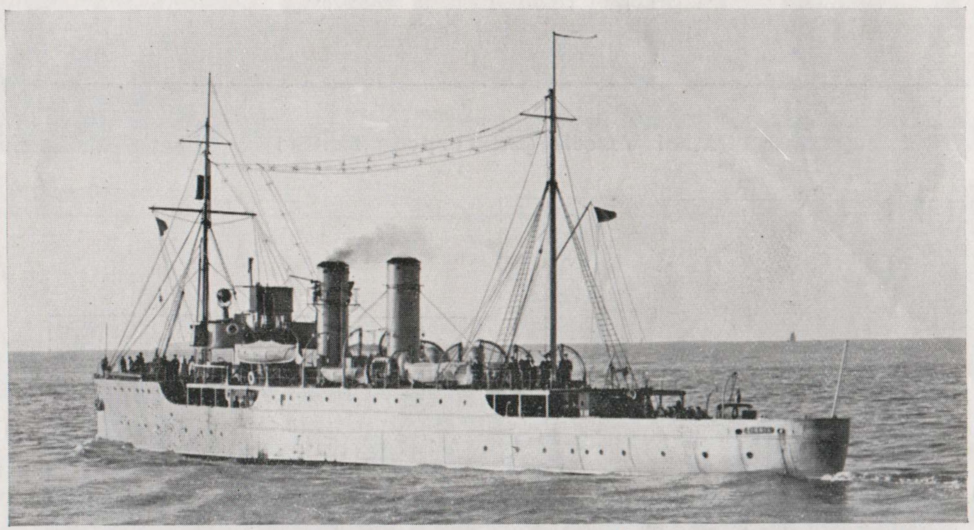
Commandant de 1e Classe. de 2e Classe.
Lieutenant.

The National Flag is also used as Ensign for both State and Mercantile vessels.

Mercantile Marine (1937): 200 vessels of 420,454 tons.

Передано Англией 1/
Пщ - 9
Бонов-загр - 1

## Sloop (*Aviso*).



ZINNIA. 1936, *courtesy Commandant Jean Baneux.*

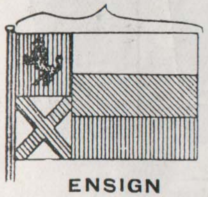
**ZINNIA** (ex-British "Flower" class Sloop *Zinnia*, launched August, 1915, by Messrs. Swan, Hunter & Wigham Richardson, Wallsend. Purchased for Belgian Navy, June, 1920). 1200 tons. Dimensions: 250 (*p.p.*), 262½ (*o.a.*)× 33× 11 (*mean*), 11¾ feet (*max.* draught). Guns: 1 M.G. on AA. mounting. Designed I.H.P. 1400 = 17 kts., but actually requires *about* 2000 I.H.P. for this speed. 1 set, triple expansion engines. 1 shaft. Boilers: 2 cylindrical. Coal: 130 tons *normal*; 250 tons *max.* = *about* 2000 miles at 15 kts. Complement (as British ship): 77. Employed on Fisheries Protection duties.

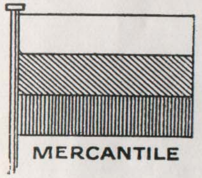
*Note:*—At least 2 ex-German torpedo boats also still exist, and would be available for defence purposes in emergency. Names reported to be *Wielingen* and *West Diep.* At present they are without armament, being employed for training personnel and on fishery protection duties.

# BULGARIA.

*Note* that the red of the flag is crimson.

▥ = Red. ▭ = White. ▨ = Green. ⁝ = Yellow.


ENSIGN


MERCANTILE

## Flags.

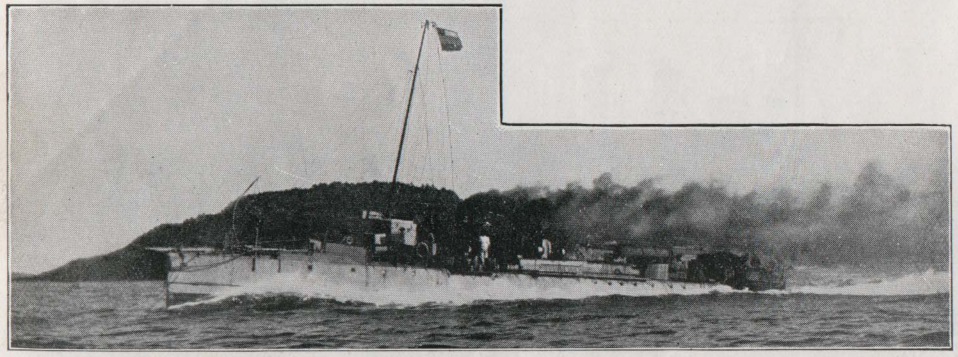
*Jack:* A white flag with a green saltire and superimposed over all the Cross of St. George.

*Minister of War and Marine :*—Lieut.-General Ivan Velkoff.

Mercantile Marine: 14 steamers of 17,476 tons.

По мирн договору разрешено иметь
в армии 55000 чел
в зен арт 1800 чел    тоннаж 7250 т
в ВМФ 3500 чел    самолет 90 (70 боевых)
в ВВС 5200 чел

## Patrol Vessels (Ex-Torpedo Boats.)

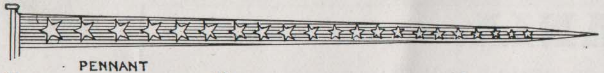


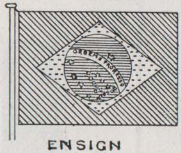
4 *Creusot* boats: **Smyeli, Khrabri, Derzki, Strogi** (built in sections in France; reassembled at Varna, 1907-8). 100 tons. Dimensions: 126½×13¼×8¾ feet. Armament: **3**—3 pdr. Torpedo tubes removed. Designed H.P. 2000 =26 kts. 1 screw. Du Temple boilers. Coal, 27 tons. Complement: 23.

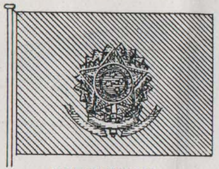
## Motor Vedette Boats.

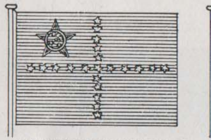
**Minior, Vzrif, Capitan Minkoff, Conductor Dokizanoff.** No particulars available.
**Nos. 1, 2** (ex French *C 27*, *C 80*, purchased 1922). 77 tons. 3 sets of 220 B.H.P. standard petrol motors, totalling 660 B.H.P.=17 kts. Petrol: 9 tons. Endurance: 700 miles at 10 kts. Guns: **2**—6 pdr. Complement: 26.

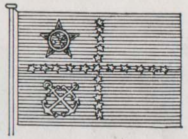
# BRAZIL.

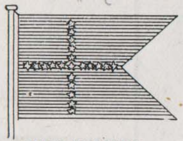

PENNANT

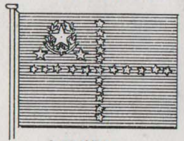

ENSIGN

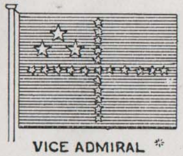

PRESIDENT

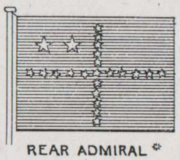

MINISTER OF MARINE

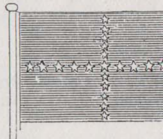

ADMIRALTY


CHIEF OF STAFF

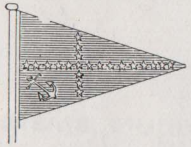

ADMIRAL

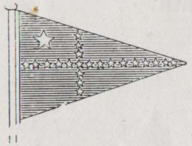

VICE ADMIRAL

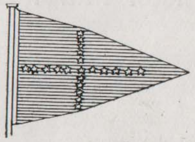

REAR ADMIRAL

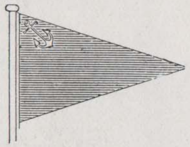


JACK

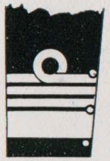

COMMODORE

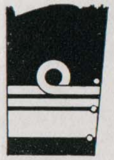

CAPTAIN IN COMMAND OF FORCES

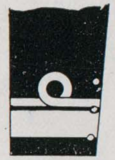

S.O. IN COMMAND OF FORCES

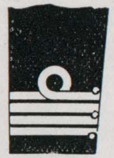

CAPTAIN OF PORT

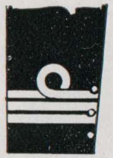
## Uniforms.

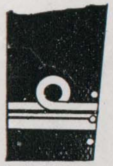

Almirante. *(Admiral.)*

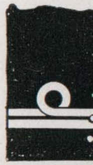

Vice-Almirante. *(Vice-Admiral.)*

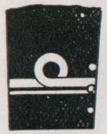

Contra-Almirante. *(Rear-Admiral.)*

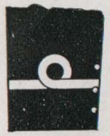

Capitão de Mar e Guerra. *(Captain.)*

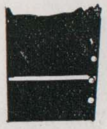

Capitão de Fragata. *(Commander.)* *(Senior.)*

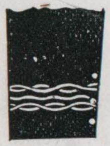

Capitão de Corveta. *(Commander.)* *(Junior.)*


Capitão Tenente. *(Lieut.-Commander*

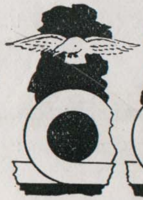

Primeiro Tenente. *(Lieut.)*

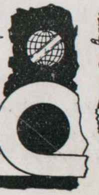

Segundo Tenente. *(Sub-Lieut.)*

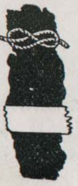

Guarda Marinha. *(Midshipman.)*

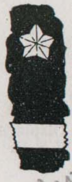

Reserve Officer.

SLEEVE BADGES.


Aviation.


Engineers.


Harbour Master.


Honorar Rank.

All have three buttons towards back of sleeves and across stripes. Deck, Engineer and Aviation Branches all have curl. Other branches have not.

Caps:—As British Navy.

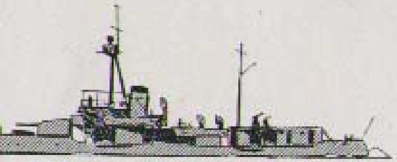
*Minister of Marine :*—Vice-Admiral Henrique Aristides Guilhem.

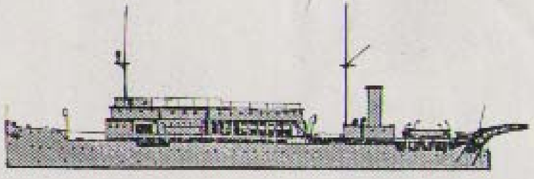
*Chief of Naval Staff :*—Vice-Admiral Amphiloquio Reis.

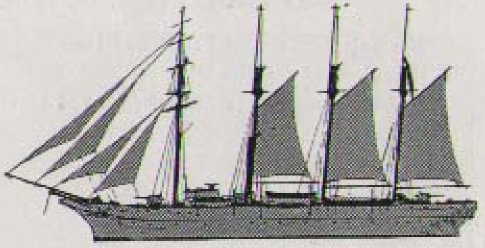
*Naval Agent in London :*—Engineer Captain Natal Arnaud.

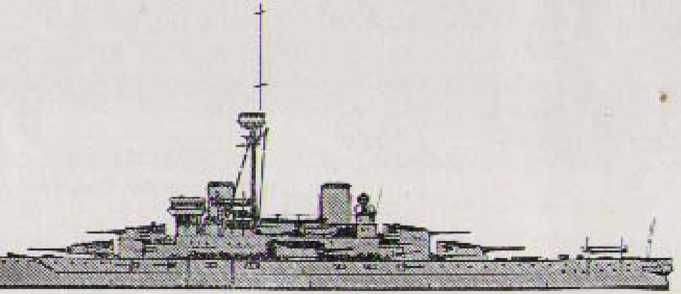
## Mercantile Marine.

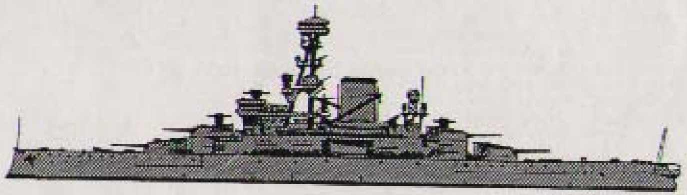
(From "Lloyd's Register," 1937). 299 vessels of 476,007 gross tonnage.

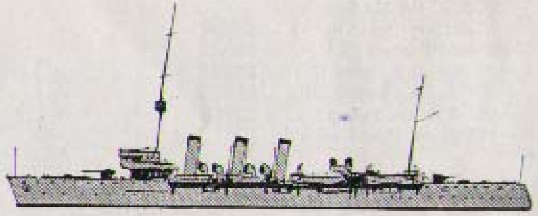

Parnahyba.


Ceará (*S/M. Depot Ship*).
(*Double hulls at stern.*)


Almirante Saldanha.

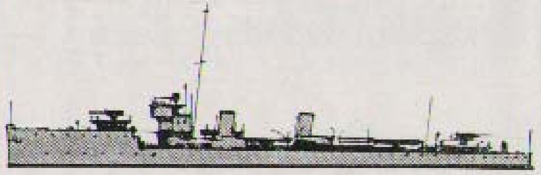

São Paulo.
(*Being re-constructed as Minas Geraes.*)

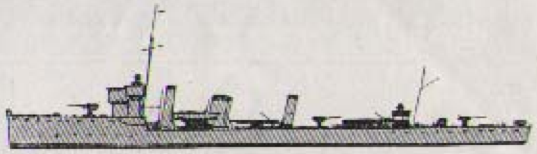

Minas Geraes.

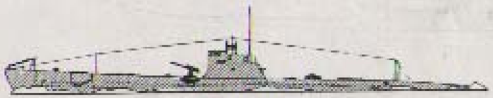

Bahia *class*.

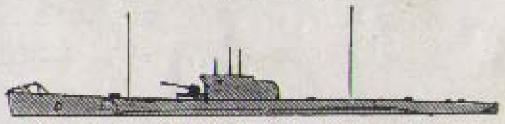
## Guns in Service.

| Calibre. | | Length in calibres | Weight of A.P. shell | Muzzle Velocity. | *Max.* penetration A.P. capped at K.C. at | | Danger Space against average ships at | | | *Service* rounds per minute |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 5000 yards. | 3000 yards. | 10,000 yards. | 5000 yards. | 3000 yards. | |
| nch. | c/m. | cals. | lbs. | ft. secs. | inch. | inch. | | | | |
| 12 | *30·5* | 45 | 850 | 2800 | ... | ... | ... | ... | ... | 2 |
| 4·7 | *12* | 40 | 45 | 2150 | .. | .. | ... | ... | ... | 8 |
| 4·7 | *12* | 45 | 48 | 2780 | | | | | | |
| 4·7 | *12* | 50 | 45 | 2630 | 1¾ | 3 | 153 | 55 | 11 | 8 |
| 4·7 | *12* | 45 | 48 | 2286 | | | | | | |
| 4 | *10* | 50 | .. | .. | | | | | | |
| 3 | *76* | 50 | 14 | 2560 | | | | | | |


Pará *class*.


Maranhão.


Tamoyo *class*.


Humaytá.

A new programme of naval construction to be spread over several years will include:—

- 2 Cruisers
- 9 Destroyers
- 8 Submarines
- 6 Minelayers
- 3 Oil Tankers

Orders placed up to Oct. 1937 have included 3 Destroyers, 3 Submarines, 6 Minelayers and 1 Oiler.

## BRAZIL—Battleships

### MINAS GERAES (Sept. 10, 1908).
### SÃO PAULO (April 19, 1909).

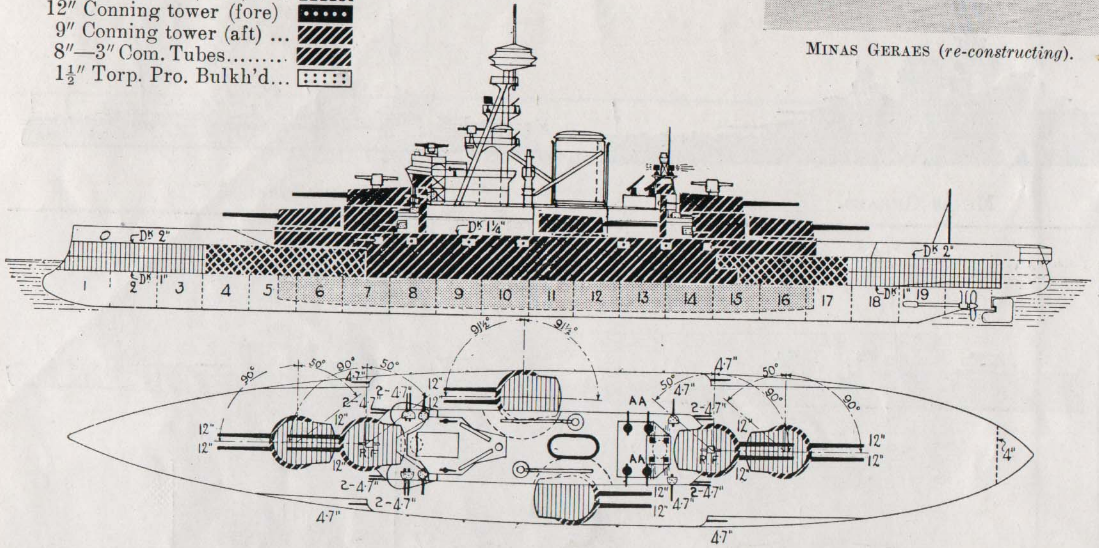
Normal Displacement: 19,200 tons.
Complement: 1,010.
Dimensions: 533 (*w.l.*), 500 (*p.p.*) × 83 × 25 feet (*max.*).

Guns (Armstrong):
**12**—12 inch, 45 cal.
**14**—4·7 inch, 50 cal.
**4**—3 inch AA.
**4**—40 mm. AA.
**8** M.G.

Armour (Krupp):

| | |
|---|---|
| 9″ Belt ................. | ▨ |
| 6″—4″ Belt (bow) N.C. .. | ▩ ▧ |
| 6″—4″ Belt (aft) N.C...... | |
| Decks as notes ........... | |
| 9″—6″ Upper belt......... | ▨ ▩ |
| 9″ & 3″ Bulkheads......... | |
| 9″ Battery (main deck) ... | ▨ |
| 9″—8″ Turrets (K.C.)... .. | ▨ |
| 12″ Conning tower (fore) | ■ |
| 9″ Conning tower (aft) ... | ▨ |
| 8″—3″ Com. Tubes......... | ▨ |
| 1½″ Torp. Pro. Bulkh'd... | ⁙ |

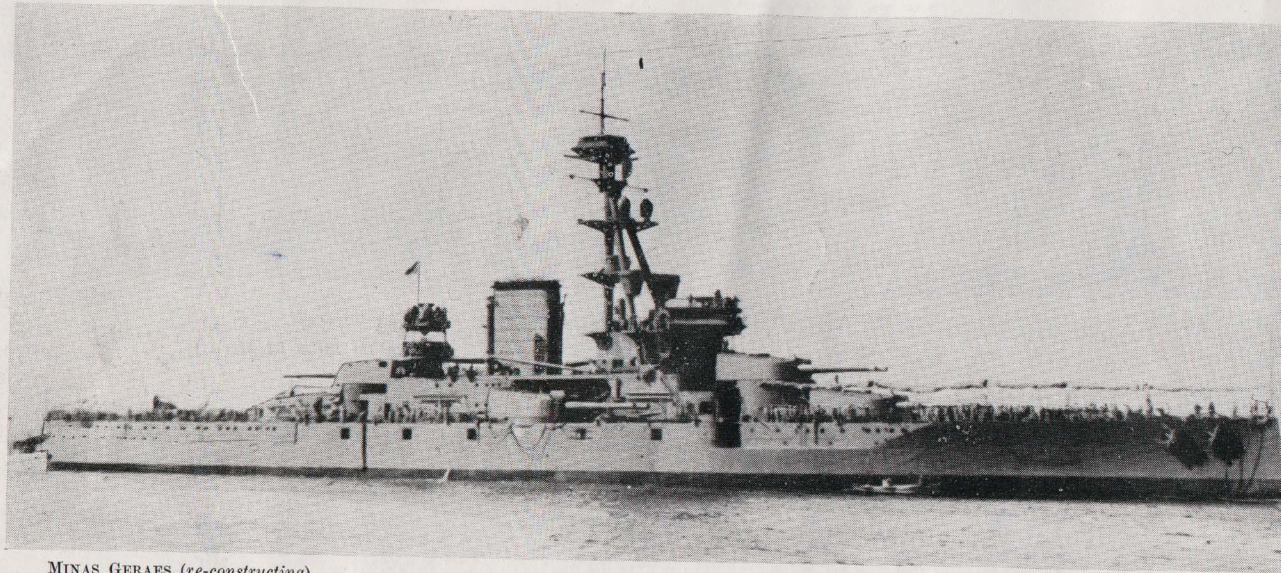
*Note to Plan.*—Disregard apparent main deck battery in elevation. Number of 4·7 inch will be as given above, though exact arrangement has still to be reported.



Machinery: 2 sets triple expansion. 2 shafts. S.H.P.: 30,000 = 21 kts.
Boilers: 6 Thornycroft. Oil fuel only.

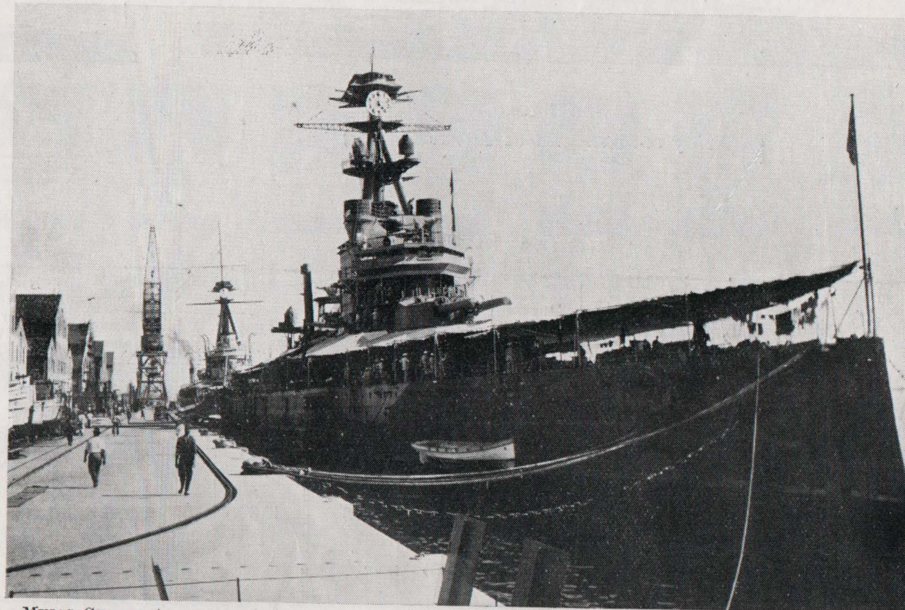
*General Notes.*—Both ships reconstructed and modernised, in 1934–37 and 1937–39, respectively.

*Engineering Notes.*—The former No. 1 stokehold was converted into four oil-fuel deep-tanks,—the space available between top of tanks and main deck being used as distilling plant, with all necessary auxiliaries. 12 side coal bunkers converted into wing oil-fuel tanks, there being 2 service oil tanks for each stokehold. All upper coal bunkers removed. Internal arrangements entirely changed, in accordance with the requirements of new uptakes. The whole Thornycroft supply includes:—main and auxiliary feed water pumps, oil fuel pumps, oil heaters and filters, teledep-installation, ventilating-plant, pipes, etc., etc.



MINAS GERAES (*re-constructing*).

1937, *courtesy Eng.-Capt. Natal Arnau*

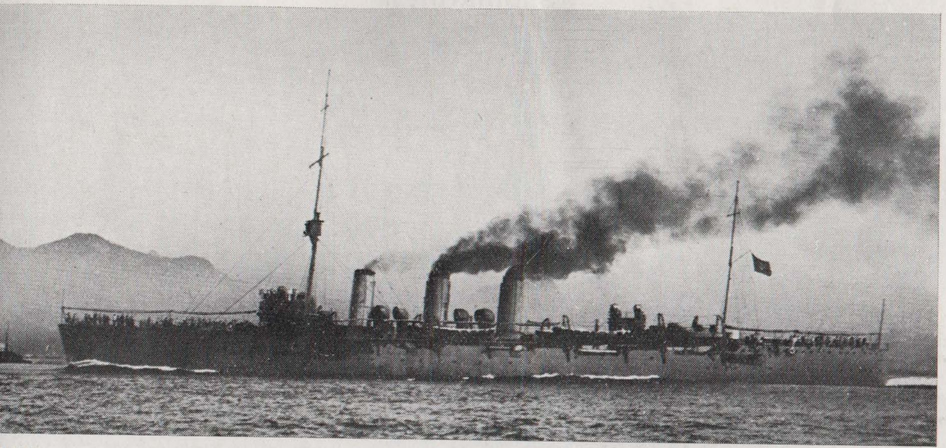


MINAS GERAES (*re-constructing*).

1937, *Officia*

| *Name.* | *Builder.* | *Machinery.* | *Laid down.* | *Completed.* | *Trials.* 30 hour at ¾ | *Trials.* Full power | *Boilers.* |
|---|---|---|---|---|---|---|---|
| *M. Geraes* | Armstrong | Vickers | 1907 | Jan.'10 | | | Thornycroft |
| *S. Paulo* | Vickers | Vickers | 1907 | July '10 | 16,067 = 19·85 | 25,517 = 21·2 | Babcock |

## Cruisers (*Cruzadores*).



AHIA

*Added 1936, courtesy Eng. Capt. Natal Arnaud.*

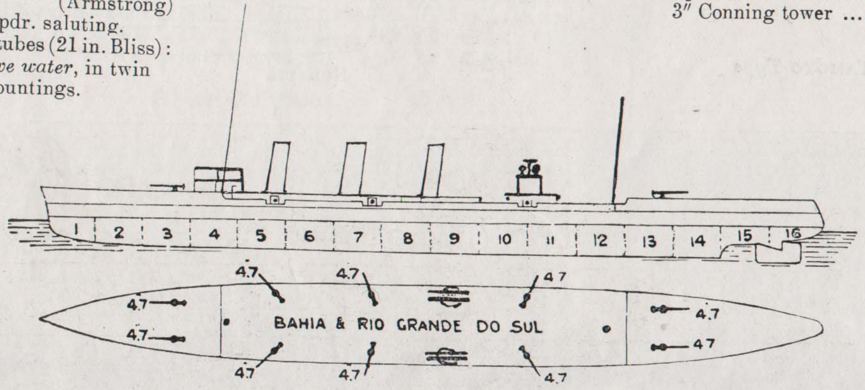
### **BAHIA** (Jan., 1909) & **RIO GRANDE DO SUL** (April, 1909).

*Normal* displacement 3150 tons. Complement 400.

Length, {(*p.p.*), 380 feet. (*o.a.*), 401½ ,, } Beam, 39 feet. *Mean* draught, 13 feet. 7½ ins.

:
–4·7 inch, 50 cal. (Armstrong)
–3 pdr. saluting.
do tubes (21 in. Bliss): *above water*, in twin mountings.

Armour:
1½″ Deck....................
3″ Conning tower .........

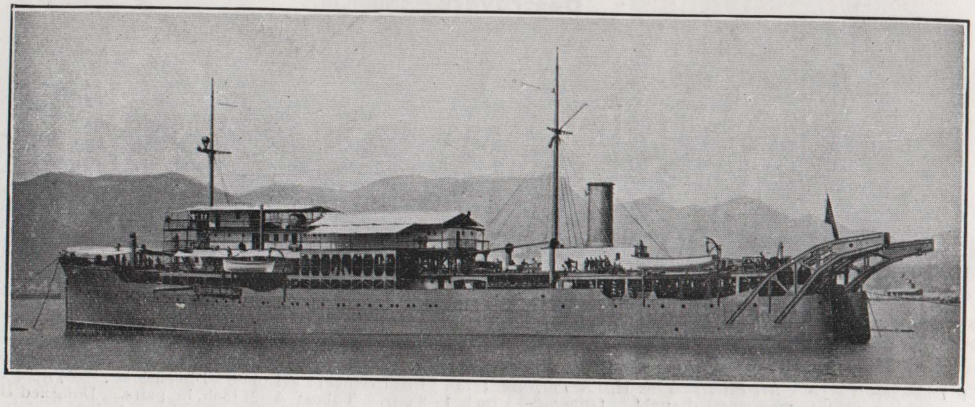


Machinery: 3 Brown-Curtis geared turbines. 3 screws. Boilers: 6 Thornycroft oil-burning. .P. 22,000 = 27 kts. 1926 *Trials*: H.P., 23,000=28·6. Oil fuel: 640 tons. Endurance: *ut* 2400 miles at 24 kts., 3092 miles at 18 kts., 6600 miles at 10 kts.

*nery Notes.*—Fire control originally consisted of voice tube from control stations to bridge and to plotting rooms on second deck—thence to battery. 1 R.F. and 2 S.L., 1 S.L. over Chart house and 1 on after S.L. platform. These arrangements have been improved, and Director system is now installed.

*ral Notes.*—Built by Armstrong; engined by Vickers; both begun 1908 (under 1907 Naval Programme) and completed 1910. Completely refitted 1925-26, by Companhia Nacional de Navegação Costeira, Rio, new engines and boilers (to burn oil fuel) being installed by Messrs. Thornycroft. Heating Surface, 26,027 sq. ft.

## Submarine Depot Ship and Salvage Vessel.



1917 *Photo, by courtesy of the Fiat-San Giorgio Co.*

**CEARÁ** (Spezia, 1915). Length (*p.p.*) 328 feet. Beam: 52 feet. Draught and displacement (with all stores) vary thus: (*a*) with dock empty and dock-gate closed 4100 tons at 14 feet draught; (*b*) with dock-gate open and dock flooded to float submarine in, 4130 tons at 17½ feet; (*c*) with gate closed and submarine docked, 4560 tons at 15 feet; (*d*) with gate closed and submarine under hydraulic pressure test in dock, 6460 tons at 20¼ feet; (*e*) with dock empty and gate closed, and when raising submarines by double cranes at stern, 4615 tons at 15 feet. Machinery: 2 sets 6-cylinder, 2-cycle Fiat-Diesel engines. 4100 B.H.P. = 14 kts. Fuel: 400 tons (own bunkers) + 240 tons for submarines. Radius of action: 400 miles at 10 kts. Guns: **4**—4 inch, **2** smaller. Built by Fiat-San Giorgio Co. Completed 1916.

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## 8 + *3* (*building*) Destroyers

*Building*

3 *U.S.A.* type: ***Greenhalgh, Marcilio Dias, Mariz e Barros.*** Building at Ilha das Cobras, Rio de Janeiro, with material imported from U.S.A. Displacement: 1,500 tons. Dimensions: 357 (*o.a.*) × 34⅚ × 9⅚ feet (*mean*). Guns: 5—5 inch, 38 cal. (dual purpose), 4 M.G. Tubes: 12—21 inch (quadrupled). Machinery: Geared turbines. S.H.P.: 42,800 = 36·5 kts. 4 high pressure watertube boilers of Express Type. Oil fuel: 500 tons. Radius: 6,000 miles.

*Note.*—These ships will be generally similar to *Mahan* class, of U.S. Navy.

## Destroyers.—*continued.*

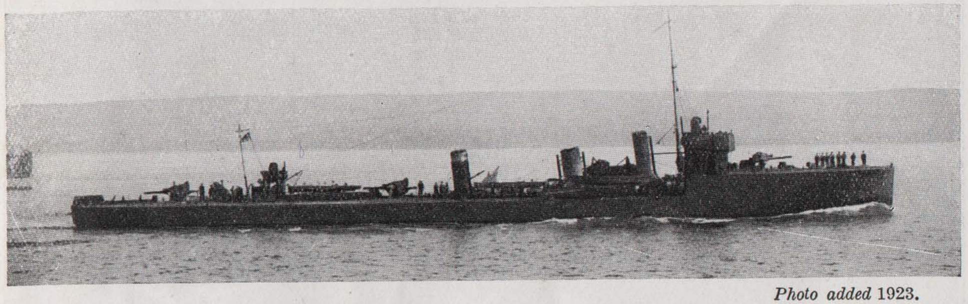
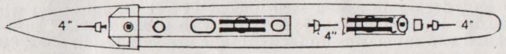
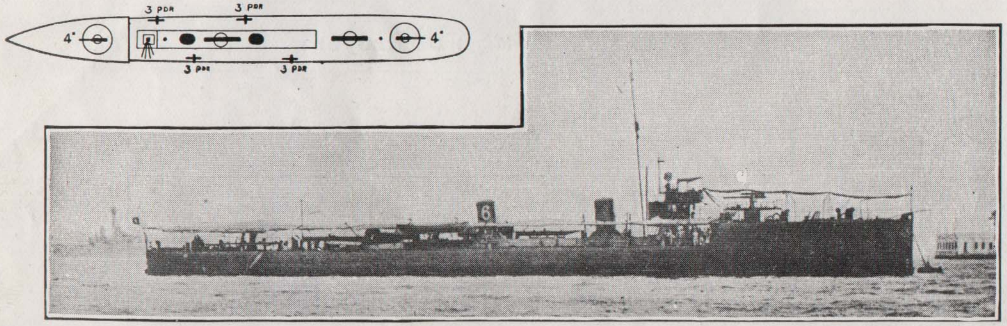


*Photo added* 1923.

1 *Thornycroft* type. **Maranhão** (ex H.M.S. *Porpoise*, 1913). Displacement: 934 tons. Dimensions: 265¼ × 26½ × 9¼ (*minimum*), 10¼ (*maximum*) draught. Guns: **2**—4 inch, **1**—2 pdr. Tubes: **4**—21 inch, in pairs. Designed H.P. 22,500 = 28 kts. Machinery: Parsons turbines. Thornycroft boilers. Oil: 250 tons. Complement: 100.



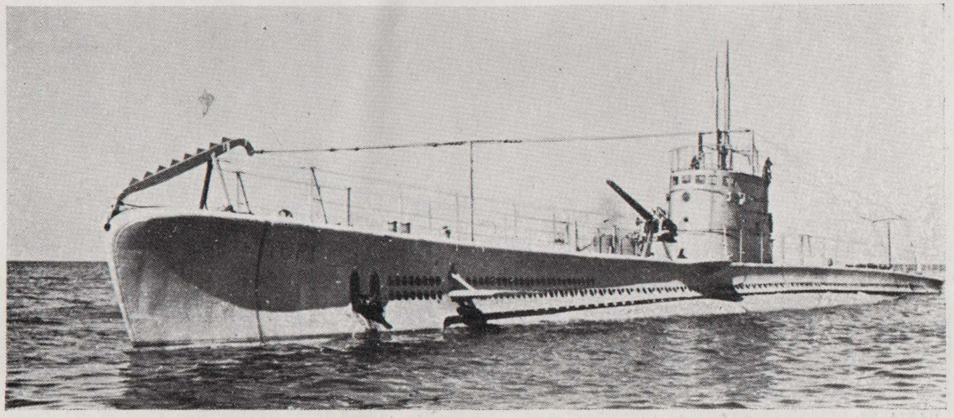


ALAGOAS. 1918 *Photo.*

7 *Yarrow* type: **Matto Grosso, Piauhy** (both 1908), **Rio Grande do Norte, Parahyba, Alagoas, Santa Catarina** (all 1909), **Sergipe** (1910). Displacement 560 tons (*full load*, 640 tons). Dimensions: 240 × 23½ × 7⅝ feet (*Max.* draught). Armament: **2**—4 inch, **4**—3 pdrs., **2**—18 in. tubes. Designed H.P. 8000 = 27 kts. Machinery: 2 sets triple expansion reciprocating. 2 double-ended Yarrow boilers. Majority of these boats retubed 1917-18. Coal: 140 tons. Nominal radius: 1600 miles at 15 kts. On acceptance trials with 6563 to 8877 H.P. they made 27·1 to 28·7 kts. No effective means of controlling fire of guns or torpedo tubes. Complement: 75.

*Note.*—Originally there were 10 vessels in this class, but *Para*, *Parana* and *Amazonas* have been scrapped.

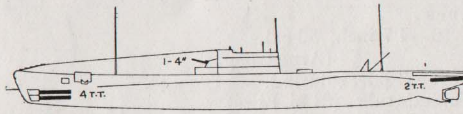
## Submarines.



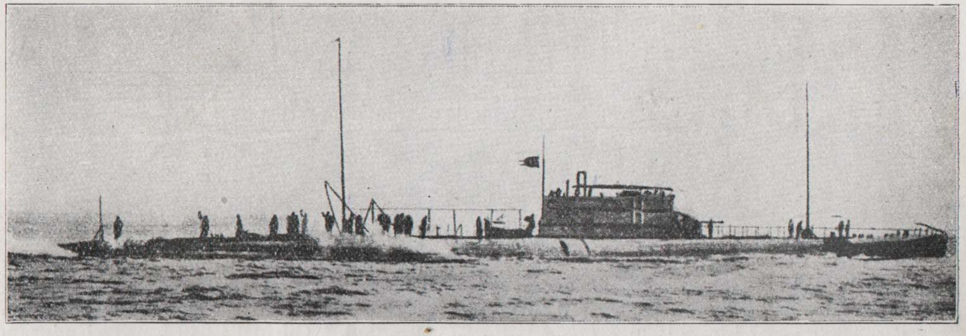
TUPY. 1937, *courtesy Engineer Captain Natal Arnaud.*

3 *Odero-Terni-Orlando* type. **Tamoyo, Tupy, Timbyra** (1937) Built at Spezia. Displacement: 620 tons on *surface*, 853 tons *submerged*. Dimensions: 197½ × 21 × 14½ feet. Armament: **1**—3·9 inch, 47 cal., **2**—13 mm. M.G., **6**—21 inch torpedo tubes. Fiat Diesels. H.P.: 1,350/800 = 14/7·5 kts. Complement: 42. All three delivered in September, 1937. Are generally similar to Italian *Perla* type, having been launched in November 1936 as the Italian submarines *Gondar*, *Macalle* and *Neghelli*, names since transferred to fresh vessels laid down at same yard.

TAMOYO *Type*



HUMAYTÁ



HUMAYTÁ. 1929 *Photo*, *Capitan Mateo Mille*, *R. Sp. N.*

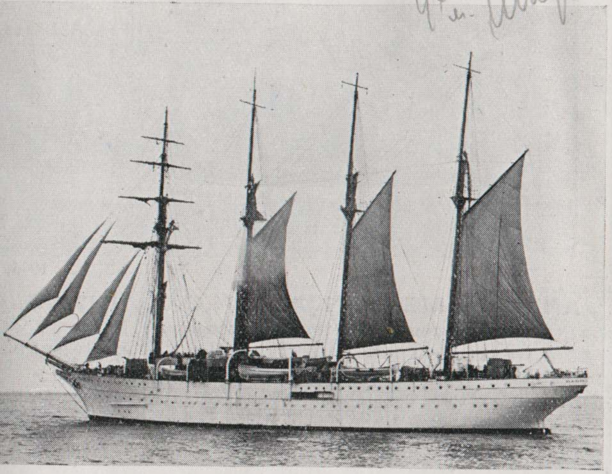
1 *Ansaldo* type: **Humaytá.** Ansãldo San Giorgio Co., Spezia, April, 1927. Displacement: 1450 tons *surface* 1884 tons *submerged*. Dimensions: 284⅛ × 25½ × 14 feet. Fiat type Diesel engines. Designed H.P $\frac{4900}{2200} = \frac{18·5}{10}$ kts. Armament: 1—4·7 inch, 45 cal., **4**—13 mm. AA., **6**—21 inch tubes (4 bow, 2 stern). Similar in general design to Italian *Balilla* type (*vide* notes in Italian Section for further details). Ordered in 1926 and completed in 1927, but not delivered in Brazilian waters until two years later.

φ - 30,5 m   0,093 m² = 1φ²

~~x8~~ φ

## Training Ship.

4х м. шхуна

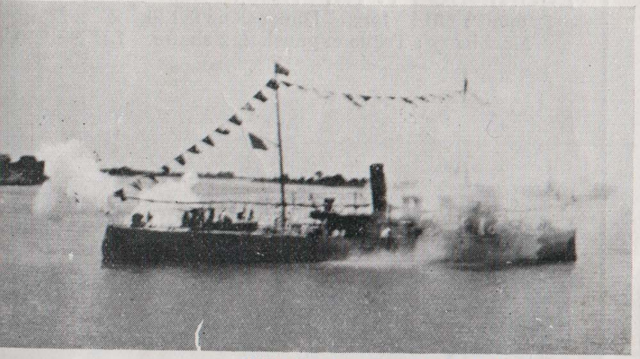


1934 *Photo, Courtesy Messrs. Vickers-Armstrongs.*

**MIRANTE SALDANHA** (Vickers-Armstrongs, Ltd., Barrow, Dec. 19, 1933). Displacement, 3,325 tons. Complement, 359 + 100 midshipmen and cadets (recently numbers have been 337 + 34). Dimensions: 262 (*pp.*), 307¾ (*o.a.*) × 52 × 18¼ feet (*mean* draught). Guns: 4—4 inch, 1—3 inch A.A., 4—3 pdr., 1—13 mm. A.A., 2 M.G. Torpedo tubes: 1—21 inch. Total sail area, 25,990 sq. feet. Auxiliary Diesel engine, B.H.P. 1,400 = 11 kts. (12 kts. reached on trials). Radius of action, 12,000 miles. Cost £314,500. Instructional minelaying gear is included in equipment.

2415 m²

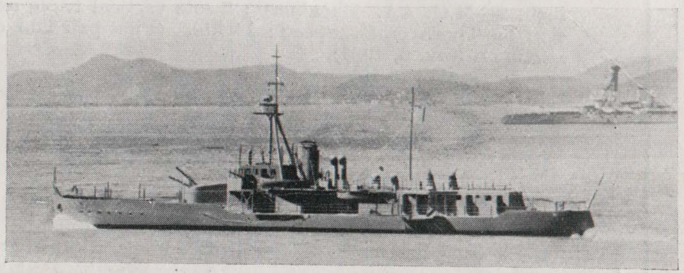
## River Gunboat.



1937, *Courtesy Eng. Capt. Natal Arnaud.*

**POCK** (ex-*Amapa*). (Thornycroft, 1907). Displacement, 95 tons. Dimensions: 130 (*pp.*). 137 *o.a.* × 18 × 6 feet. Guns: 2—3 pdr., 2 M.G. Machinery: Triple expansion. shafts. H.P.: 450 = 14 kts. 1 Babcock watertube boiler. Coal: 51 tons.

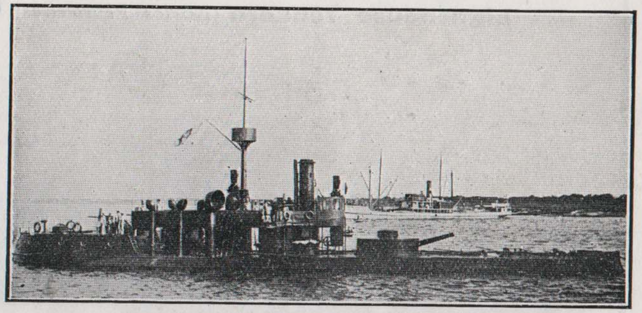
## River Monitors.



(Official model.) 1936, *Courtesy Eng. Capt. Natal Arnaud.*

**PARNAHYBA** (Nov. 6, 1937). Laid down at Rio, June 11, 1936. Displacement: 600 tons. Dimensions: 180½ × 33½ × 5 feet (*max.* draught). Guns: 1—6 inch, 2 M.G. Machinery: 2 sets vertical triple expansion by Thornycroft. I.H.P.: 1,300 = 12 kts. Boilers: 2 of 3-drum type, working pressure 250 lbs. Oil fuel.

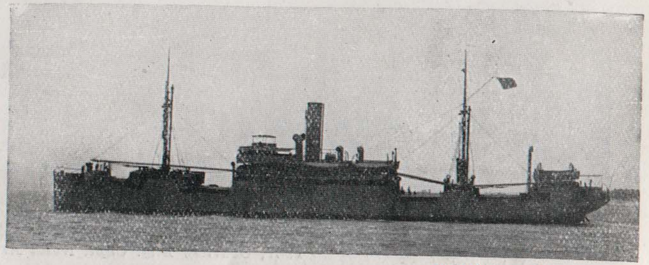
**PARAGUASSÚ** (ex-*Victoria*). Building at Rio. Of similar design to *Pernambuco*, below. Machinery: 2 sets triple expansion, by J. S. White & Co., Ltd., Cowes.



1916 *Photo, Abrahams.*

**PERNAMBUCO** (Rio, 1905, completed 1910). 470 tons. Dimensions: 146 × 24 × 5¼ feet. Guns: 2—4·7 inch, 2—3 pdr. Armour: 6·6″–4″ belt, 4″ deck, 3½″ conning tower, 6″ turret. H.P.: 800 = 11 kts. 2 shafts. Coal: 45 tons. Took 20 years to build, having been laid down in 1890. Boilers renewed by Messrs. J. S. White & Co., Ltd., 1937.

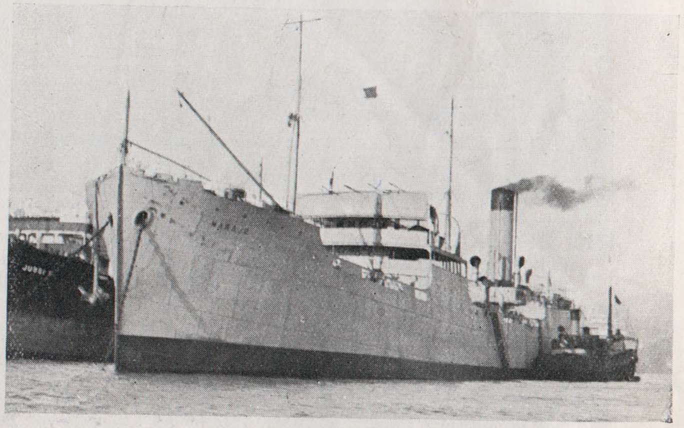
## Repair Ship.



1920 *Photo, Gieves, Ltd.*

**BELMONTE** (ex-German S.S. *Valesia*, Rostock, 1912). 5227 tons *gross*. Dimensions: 364¾ × 51 × 15 feet. Guns: 4—4·7 in., 2—6 pdr. H.P. 2700 = 12 kts. Can take about 6500 tons as cargo.

## Oilers.

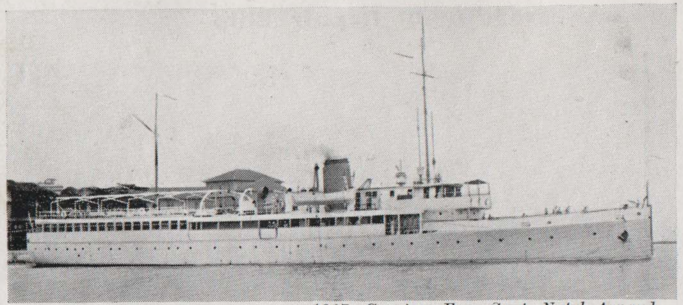


1937, *Courtesy Eng. Capt. Natal Arnaud.*

**MARAJÓ** (ex-*Malistan*), (Bartram & Sons, Sunderland, 1924). Purchased 1936. Displacement: 7,930 tons, 5,553 tons *gross*. Dimensions: 400 × 52¼ × 25¼ feet (*mean*). Machinery: Triple expansion. H.P.: 3,100 = 10 kts.

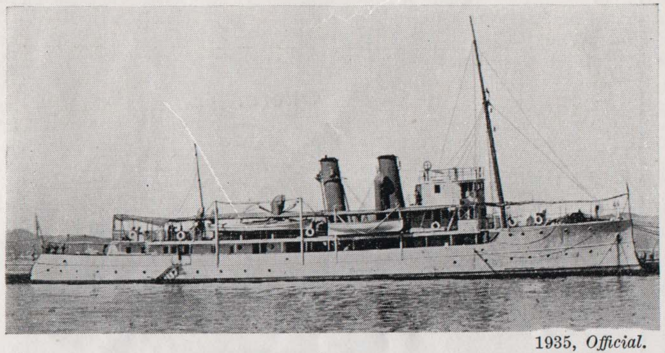
**NOVAES DE ABREU** (Rotterdam, 1918). Displacement, 500 tons. Dimensions: 140 × 23 × 12 feet. H.P.: 400 = 10 kts. Oil: 400 tons.

## Surveying Vessels (*Navios Hydrograficos*).



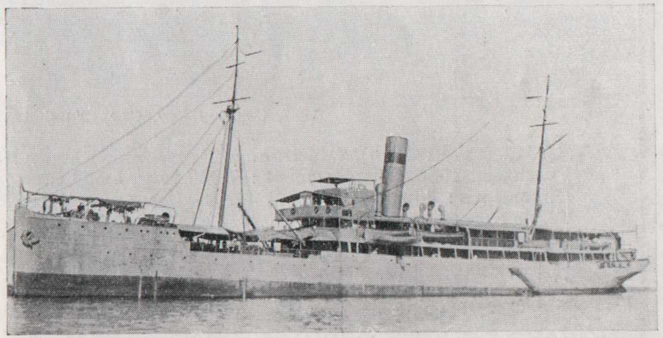
1937, *Courtesy Eng. Capt. Natal Arnaud*

**JACEGUAY** (ex-*Flecha,* ex-*H.M.S. Fairfield*), (Clyde Shipbuilding Co., 1919). Ex-minesweeper, purchased for use as a surveying vessel in 1937. Displacement : 800 tons. Dimensions : 231 (*o.a.*) × 28½ × 7½ feet. Guns : I.H.P. : 2,200 = 16 kts. Coal : 185 tons.



1935, *Official.*

**RIO BRANCO** (ex-Canadian Government vessel *Margaret*). (Thornycroft, 1914). Displacement : 896 tons. Dimensions : 200 × 32 × 10 feet. Guns : 2—6 pdr. I.H.P. : 2,000 = 15 kts. Coal : 200 tons.

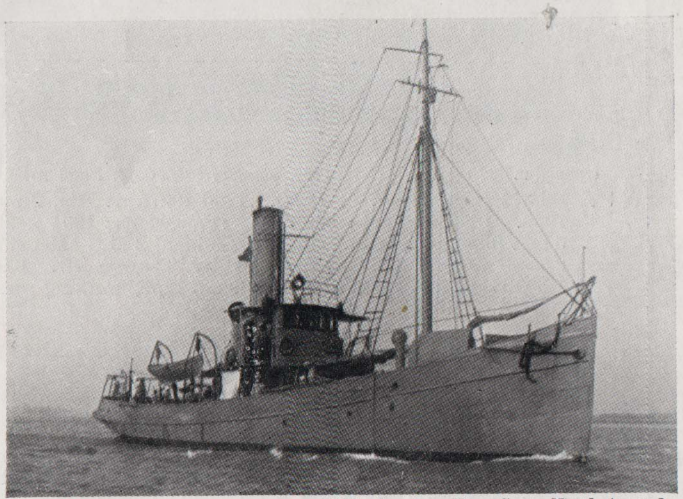


1935, *Official.*

**JOSÉ BONIFACIO** (ex-*Itapema,* 1909), **VITAL DE OLIVEIRA** (ex-*Itauba,* 1910). Both built by Ailsa S.B. Co., Troon. Displacement : 1,300 tons. Dimensions : 270 × 42 × 14 feet. Guns : 2—4 inch, 2—6 pdr. H.P. : 540 = 9 kts.

## Minelayers

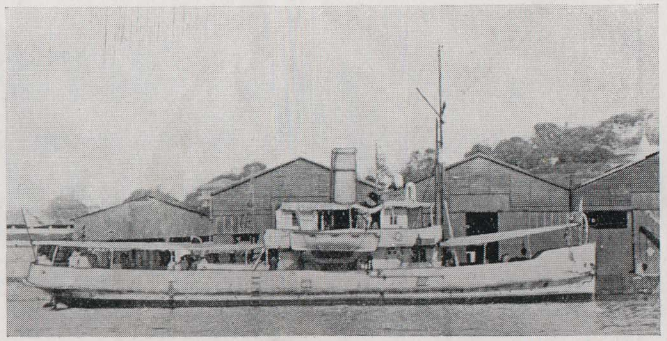
6 under construction. Two building at Rio, two at Santos, one at Bahia, one at Rio Grande do Sul. Displacement : 552 tons. Dimensions : 188⅔ × 25½ × 8 feet (*mean*). Guns : 1—4·1 inch, 2—M.G. AA. Machinery : 2 sets vertical triple expansion by Thornycroft. Speed : 14 kts. (First pair laid down at Rio on Nov. 6, 1937).



1937, *Courtesy Eng. Capt. Natal Arnaud*

**TENENTE MARIA DO COUTO.** 340 tons. Dimensions : 116 × 21 × 12 feet. Guns : 2—3 pdr. Mines : 30.

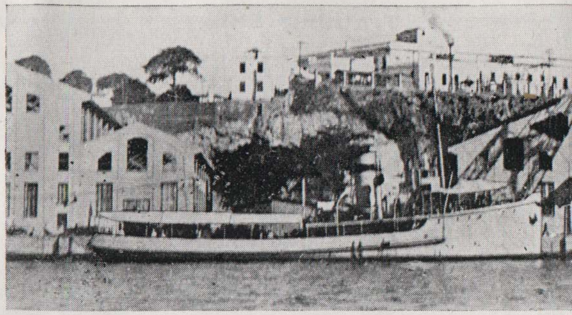
## Lighthouse Tenders (*Navios Pharoleiros*).



1935, *Official.*

**TENENTE MARIO ALVES, TENENTE LAHMEYER.** Displacement : 280 tons. Dimensions : 116¼ × 22¾ × 11 feet. Guns : 2 M.G.

## Seagoing Tugs (*Rebocadores*).



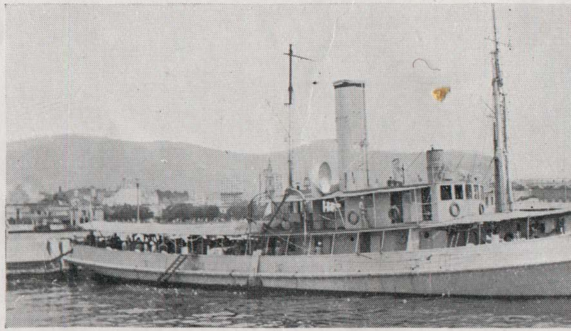
1935,

**ANNIBAL MENDONÇA, D.N.O.G.** (1919). *Sai*
Displacement : 820 tons. Dimensions : 135 × 30 ×
Guns : 2—3 pdr. I.H.P. : 1,200 = 12 kts. (present be
10 kts.). Coal : 240 tons.

*Note*—One of these Tugs is believed to be ex-*Cunha Gomes,* ex-*St. E*
*Tudy* the other is ex-*Paraná,* ex-*St. Teath.* Respective ident
each is required.

*Photo wanted.*

**LAURINDO PITTA.** (1910). Built by Vickers.
ment : 514 tons. Dimensions : 130 × 26 ×
Machinery : Triple expansion, 2 shafts. I.H.P : 850

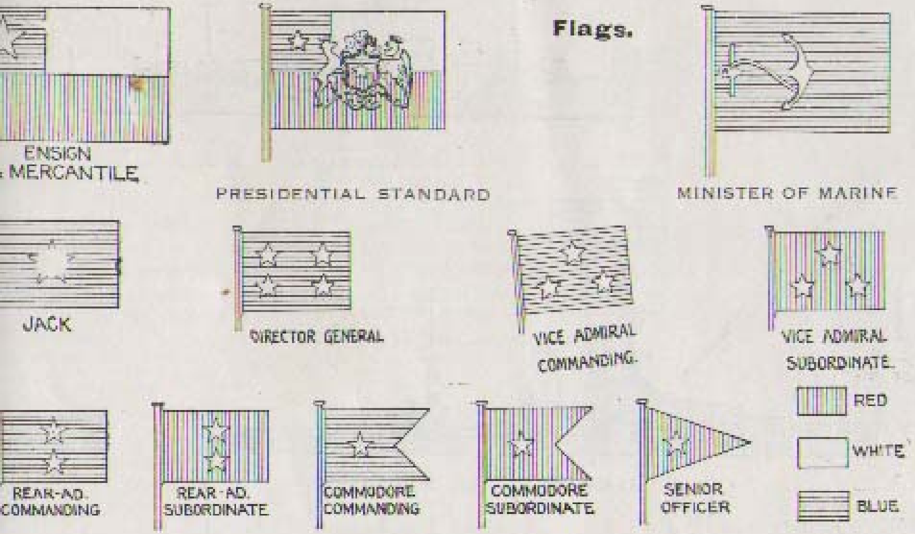


H. PERDIGÃO. 1937, *Courtesy Eng. Capt. Na*

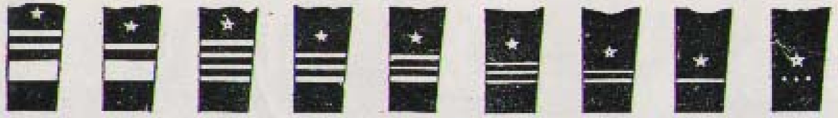
**HEITOR PERDIGÃO, MUNIZ FREIRE.** (192
placement : 500 tons. Dimensions : 132 × 26 ×
Guns : 2—3 pdr. I.H.P. : 850 = 11 kts.

# CHILE.

## Flags.


ENSIGN
MERCANTILE
PRESIDENTIAL STANDARD
MINISTER OF MARINE
JACK
DIRECTOR GENERAL
VICE ADMIRAL COMMANDING
VICE ADMIRAL SUBORDINATE
RED
WHITE
BLUE
REAR-AD. COMMANDING
REAR-AD. SUBORDINATE
COMMODORE COMMANDING
COMMODORE SUBORDINATE
SENIOR OFFICER

## Uniforms.



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vice Almirante. | Contra-Almirante. | Capitan de Navio. | Capitan de Fragata. | Capitan de Corbeta. | Teniente 1° | Teniente 2° | Guardia Marina de 1a clase. | Guardia Marina de 2a clase. |
| *Vice-Ad.* | *Rear-Ad.* | *Captain.* | *Commander.* | *Lieut. Comdr.* | *Lieut. (Senior).* | *Lieut. (Junior).* | *Sub.-Lieut.* | *Midshipman.* |

Branches the same with colours as follows:—Engineers (blue), Paymasters (white), Doctors (red), Chaplains (purple).

---

*ster of National Defence:* Sr. Emilio Bello C.

*of Naval Commission* (London): Rear-Admiral C. Rogers.

*Attaché* (London): Commander Gerald H. Trudgett.

*nnel:* About 6000, all ranks.

## Naval Bases.

**CAHUANO.** Two dry docks, 614 × 87 × 30½ feet and 800 × 116 × 30 feet respectively. One small floating dock, 216 × 42 × 15 feet. Gunnery, Torpedo, Submarine, and other Training Establishments here.

**PARAISO.** One small steel floating dock privately owned, 314 × 65 × 21 feet (4500 tons capacity). Staff College and Naval Academy for training of executive and Engineering branches here, also schools for Communications, Coast Artillery, Navigation, etc. is also a small steel floating dock at Mejillones.

## Naval Ordnance. (All details unofficial.)

| | Type* | Calibre. | | Length. (cals.) | Weight of Gun. (tons.) | Weight of Proj. (lbs.) | Weight of Charge. (lbs.) | M.V. (ft.-secs.) | M.E. (ft.-tons.) | Max. R.P.M. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Inches. | Cm. | | | | | | | |
| HEAVY | A | **14** | *35·6* | 45 | 85 | 1585 | 324 | 2500 | .. | 2 |
| MEDIUM | C | **9·4** | *24* | 36 | 24 | 374 | 198 | 2230 | 12,421 | .. |
| | A | **8** | *20·3* | 45 | 18·5 | 210 | 44 | 3650 | 10,226 | 4 |
| | A | **8** | *20·3* | 40 | 15 | .. | .. | 2582 | .. | .. |
| | A | **6** | *15·2* | 50 | 8¾ | 100 | 31 | 3000 | 6240 | 9 |
| | A | **6** | *15·2* | 40 | 6¾ | 100 | 18·3 | 2500 | 4334 | 8 |
| | A | **4·7** | *12* | 50 | cwt.<br>63½ | 45 | 10¾ | 2953 | 2721 | 12 |
| | A | **4·7** | *12* | 45 | 53 | 45 | 8 | 2552 | 2110 | 10 |
| | C | **4·7** | *12* | 45 | .. | .. | .. | .. | .. | .. |
| LIGHT | A | **4** | *10·2* | .. | .. | .. | .. | .. | .. | .. |

* A=Armstrong; C=Schneider-Canet.

14 inch, 45 cal., in *Alm. Latorre.*
9.4 inch, 36 cal., in *C. Prat.*
8 inch, 40 cal., in *O'Higgins, B. Encalada.*

6 inch, 50 cal., in *Alm. Latorre* and *Chacabuco.*
6 inch, 40 cal., in *O'Higgins, B. Encalada.*
4.7 inch in *Serrano* class (6).
4.7 inch in *C. Prat, Chacabuco, G. Baquedano*
4 inch in *Alm. Lynch* class (2).

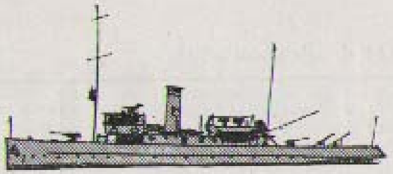
**Torpedoes:** 21 inch (heater), and 18 inch.

**Mines:** Similar to British pattern.

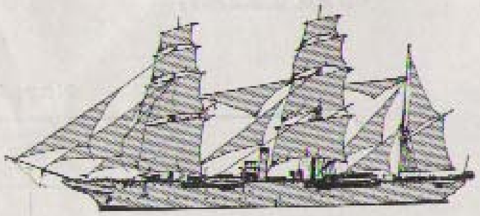
## Mercantile Marine.

(From "Lloyd's Register" 1937 figures.)

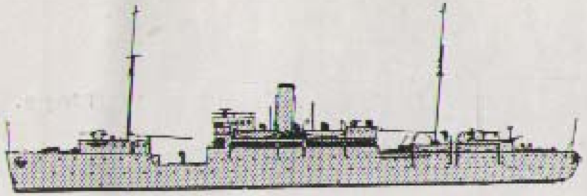
93 vessels of 141,969 gross tonnage.



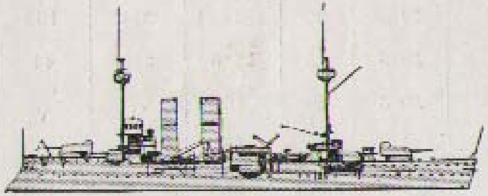
LEUCOTON, ELICURA, OROMPELLO.



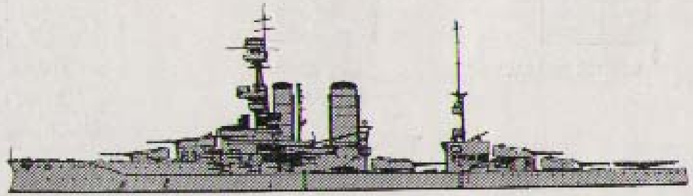
GENERAL BAQUEDANO.
(*Training Ship.*)



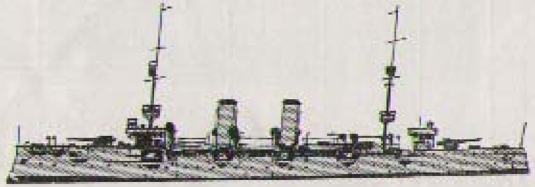
ARAUCANO.



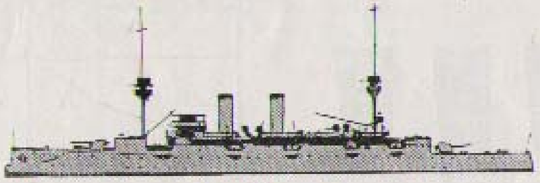
CAPITAN PRAT.



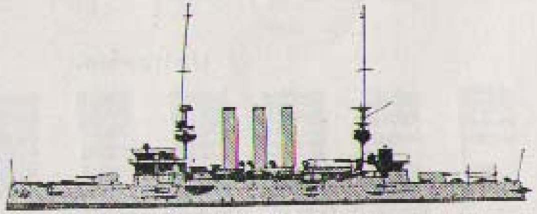
ALMIRANTE LATORRE.



CHACABUCO.

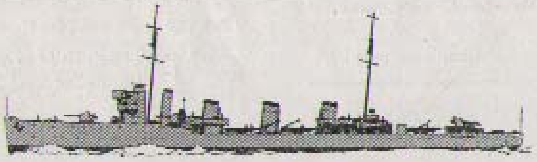


BLANCO ENCALADA.

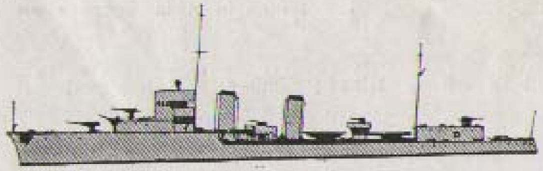


GENERAL O'HIGGINS.

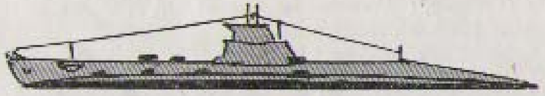
TORPEDO CRAFT.



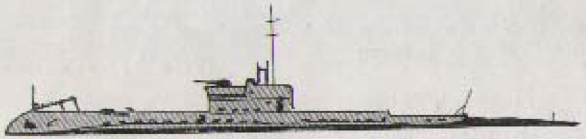
ALM. LYNCH. ALM. CONDELL.



SERRANO *class.*



"H" *class.*



O'BRIEN *class.*

**NTE LATORRE** (ex British *Canada*, ex Chilean *Almirante Latorre*, *araiso*, Nov., 1913). Standard displacement, 28,000 tons (over 32,000 *full* omplement, 1176.

.), 625 feet. (*o.a.*), 661 feet. Beam, 103 feet. { *Mean* draught, 28½ feet. / *Max.* ,, 30 ,, }

rmstrong) :
4 inch, 45 cal.
inch, 50 cal.
inch AA.
pdr
G.
tubes (21 inch) :
*merged.*
ult.

r :
elter (over casemates)
'xle (over battery)
pper (outside battery)
Main (aft)
rotective
rward) } lower
ft) }
o Protec. :
1½″ Bulkheads
ags., &c.) Sections
8, 15, 19–21 on plans.

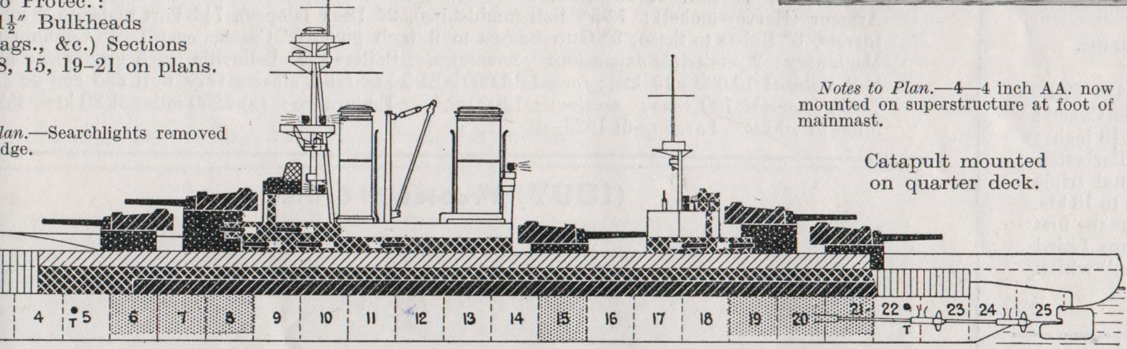
Armour :
10″ Lower belt ...... ▨
*Vertical.*
7″ Middle belt ....... ▩
4½″ Upper belt ....... ▨
6″-4″ Belt (ends) ▩ ▥
4½″, 4″ B'lkh'ds (f. & a.)
6″ Batteries ......... ▩
10″ Barbettes ......... ■
10½″-9″ Gunhouses ■ ▨
3″ C.T. base*.........
11″ C.T. (6″—3″ hood).. ■
6″ Fore com. tube .... ▩
6″ Torpedo C.T. ...... ▩
6″ Aft com. tube ..... ▩

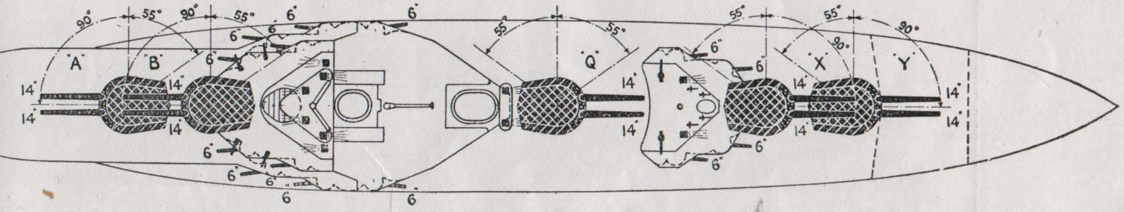
*Not shown on plans.

*lan.*—Searchlights removed dge.

*Notes to Plan.*—4—4 inch AA. now mounted on superstructure at foot of mainmast.

Catapult mounted on quarter deck.



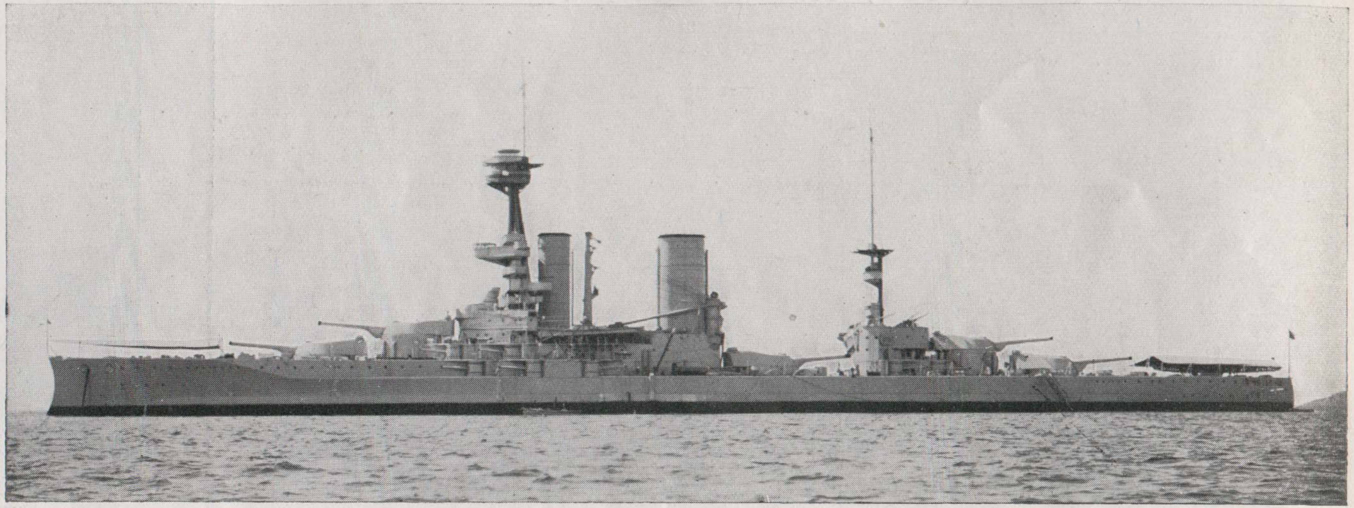


Machinery : Turbine, 4-shaft : (L.P.) Parsons ; (H.P.) Parsons. Boilers : 21 Yarrow. Designed H.P. 37,000 = 2·75 kts. Oil : 4,300 tons. Endurance : 4,400 miles at 10 kts.

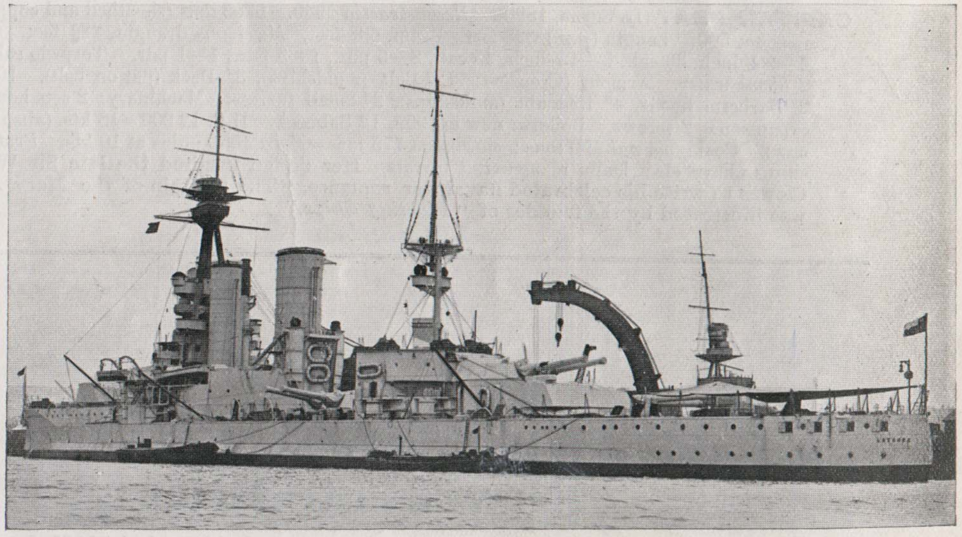
*unnery Notes.*—14-inch have a range only limited by *max.* visibility. Originally had 16—6 inch, but the 2—6 inch on upper deck, abeam of after funnel, were removed and ports plated over. Reason for removal was because guns were only a few feet from muzzle of " Q " turret 14-inch guns on extreme bearing and were damaged by blast. Anti-aircraft guns are mounted on after superstructure.

*rmour Notes.*—Barbettes, 6″ and 4″ as they descend behind belts.

*earchlights.*—8—24 inch and 2—20 inch (signalling) Harrison lamp type burners.



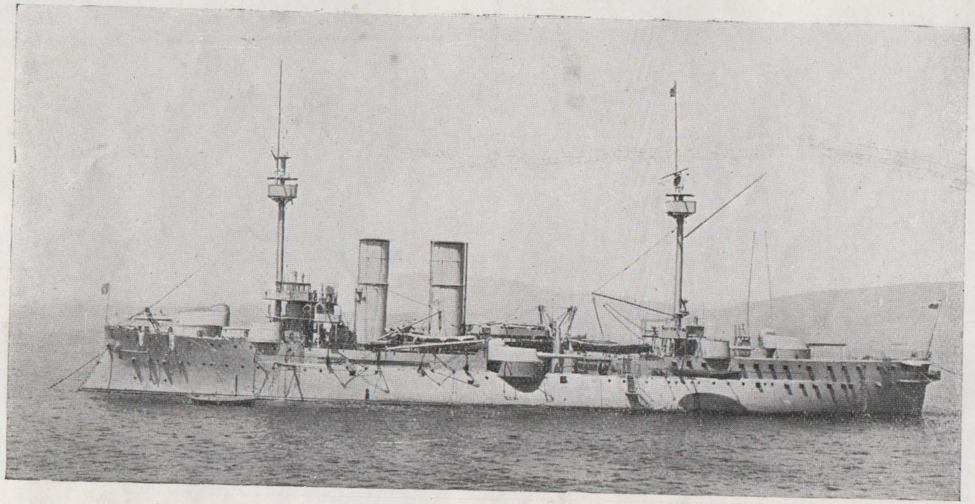
1933 *Photo, Official.*



1931, *R. Perkins, Esq.*

*General Notes.*—Laid down for Chile by Armstrong, in Nov. 1911, as the *Valparaiso*, her name being altered afterwards to *Almirante Latorre.* Purchased for British Navy on outbreak of War and re-named *Canada.* Completed Sept., 1915. Additional protection, &c., added during War is said to have raised her *normal* displacement to over 30,000 tons. Re-purchased by Chile, April, 1920. Arrived at Devonport in summer of 1929 to be refitted in the dockyard under a special contract with new machinery supplied by Vickers-Armstrongs, Ltd. Bulges fitted, and masts and bridgework underwent slight modifications. The main topmast was raised to 60 feet, and controls fitted at the ends of the upper bridge : searchlights removed from bridge ; new turbines and oil fuel only installed. She returned to Chile early in 1931. A catapult is mounted on the quarterdeck. Her sister ship, *Almirante Cochrane*, was purchased for British Navy in 1917, re-named *Eagle*, and modified for service as an Aircraft Carrier. (See British Navy Section.)

## (1888) Coast Defence Ship.



*1919 Copyright photo, G. Allan, Valparaiso.*

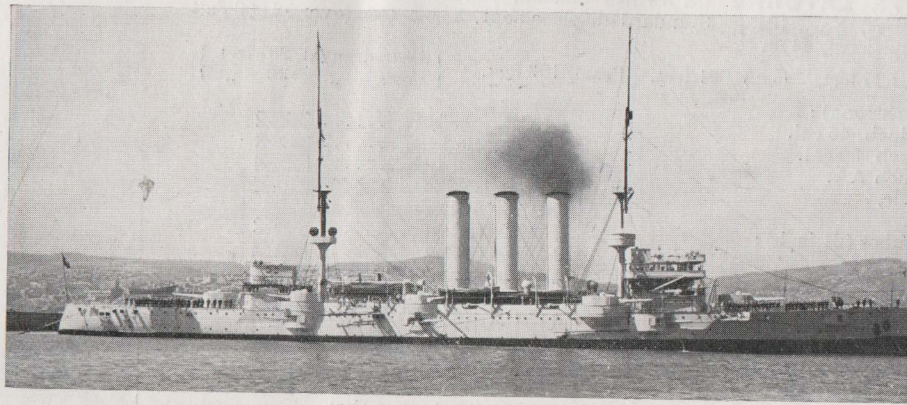
**CAPITAN PRAT** (La Seyne, 1890). *Reconstructed* 1909. 6902 tons (sheathed and coppered). Complement 500. Length (*p.p.*), 328 feet. Beam, 60$\frac{2}{3}$ feet. *Maximum* draught, 22$\frac{5}{6}$ feet. Guns (Canet): **4**—9·4 inch, 36 cal., **8**—4·7 inch, 45 cal., **8**—6 pdr., **1**—3 pdr., **1**—1 pdr. Torpedo tubes (18 inch): 2 *above water*. Armour (Creusot): 12″ Belt (amidships), 3″ Deck (flat on belt), 10$\frac{1}{2}$″ Barbettes, 2″ Barbette hoods, 4″ Redoubt (amidships), 2″ Small turrets. Machinery: 2 sets horizontal triple expansion. 2 screws. Boilers: new in 1909, 12 Babcock. H.P. 12,000 = 18 kts. (about 16 to 18 kts. now). Coal: *normal* 400 tons; *maximum* 775 tons = *circa* 4650 miles at 10 kts. *Prat* was the first ship to have electrically manœuvred turrets. Her design inspired the late Sir William Laird Clowes to write his celebrated naval war romance, "The Captain of the *Mary Rose*," which was illustrated by the founder of "*Fighting Ships*."

### Cruisers.

## New Construction

Tenders were invited from various British and Continental shipyards in 1937 for 2 cruisers of 8,000 tons, armed with 6 inch guns.

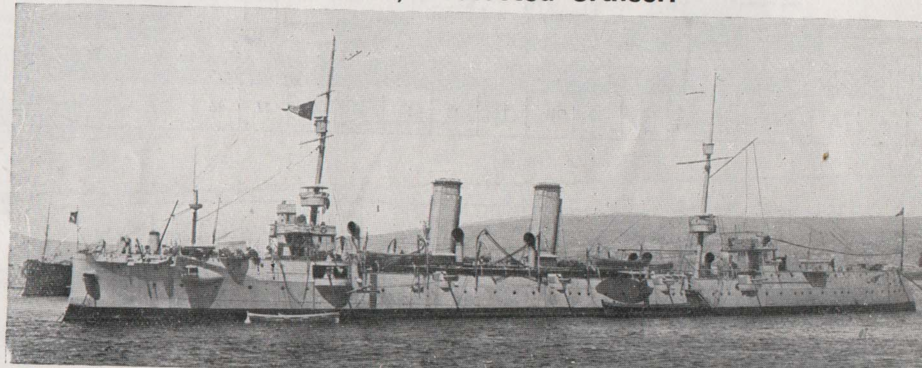
## (1896) Armoured Cruiser.



1933 *Photo, O*

**GENERAL O'HIGGINS** (Armstrong, 1897). 8500 tons. Sheathed and coppered. Compleme Length (*p.p.*), 412 feet. Beam, 62$\frac{3}{4}$ feet. *Max.* draught, 22 feet. Guns (Armstrong): **4**—8 inch, **10**—6 inch, 40 cal., **13**—3 inch. (**1** field), **4** M.G. Torpedo tubes (18 inch): **2** *subm* Armour (Harvey-nickel): 7″-5″ Belt (amidships), 2″ Deck (slopes), 7$\frac{1}{2}$″ Port plates to 8 inc turrets, 6″ Hoists to these, 6″ Gun houses to 6 inch guns, 6″ Casemates (6), 9″ Conning Machinery: 2 sets triple expansion. 2 screws. Boilers: 30 Belleville (in 3 groups). De H.P. *natural* 10,000 = 19 kts.; *forced* 16,000 = 21·5 kts. (still steams very well and can do 2 Coal: *normal* 700 tons; *maximum* 1200 tons. Endurance: (*a*) 2250 miles at 20 kts., (*b*) miles at 10 kts. Large re-fit 1928–29.

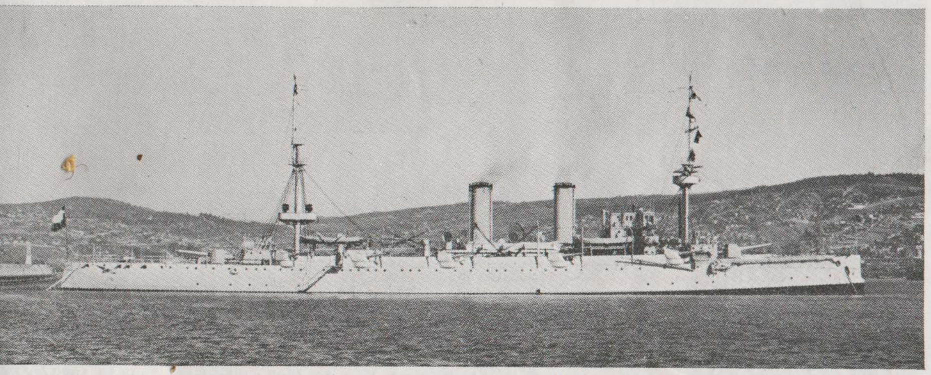
## (1897) Protected Cruiser.



*1919 Copyright photo, G. Allan, Valparaiso.*

**CHACABUCO** (Armstrong, 1898, purchased 1902). 4500 tons. Complement 400. Length (*p.p.*) feet. Beam, 46$\frac{1}{2}$ feet. *Maximum* draught, 17 feet. Guns (Armstrong): **2**—6 inch, 50 cal. **10**- inch, 40 cal., **5**—3 inch, **1**—3 pdr. Armour (Harvey-nickel): 4$\frac{1}{2}$″ Deck (amidships), 1$\frac{3}{4}$″ (ends), 4$\frac{1}{2}$″ Fronts to 6 in. gun shields, 2$\frac{1}{2}$″ Sides to 6 in. gun shields, 2$\frac{1}{2}$″ Shields to 4·7 in. 5″ Conning tower. Boilers, cylindrical. I.H.P. 15,500 = 24 kts. *forced*. Still steams 2 screws. Coal: *normal* 300 tons; *maximum* 1028 tons. Electric training and elevating to 6 inch guns. Laid down at Elswick, 1897, as a speculation. Completed 1902, and purchase Chile.

## (1893) Protected Cruiser.



1937, *Official, courtesy Com. G. H. Trudgett.*

**ANCO ENCALADA** (Armstrong, 1893). 4420 tons (sheathed and coppered). Complement 427. Length (*p.p.*), 370 feet. Beam, 46½ feet. *Maximum* draught, 19½ feet. Armament: **2**—8 inch, 40 cal., **10**- 6 inch, 40 cal., **5**—3 inch, **1**—1 pdr., **2** Maxims. Armour: 4″ Deck, 6″ Shields to 8″ guns, 6″ Conning tower. Boilers: cylindrical (retubed 1908-9). Designed H.P. *forced* 14,500= 22·75 kts. (about 21·5 kts. now.) Coal: *maximum* 850 tons. Endurance: 5000 miles at 10 kts. Refitted, 1920, at Talcahuano.

—Laid down Sept., 1892, launched a year later, and completed April, 1894.

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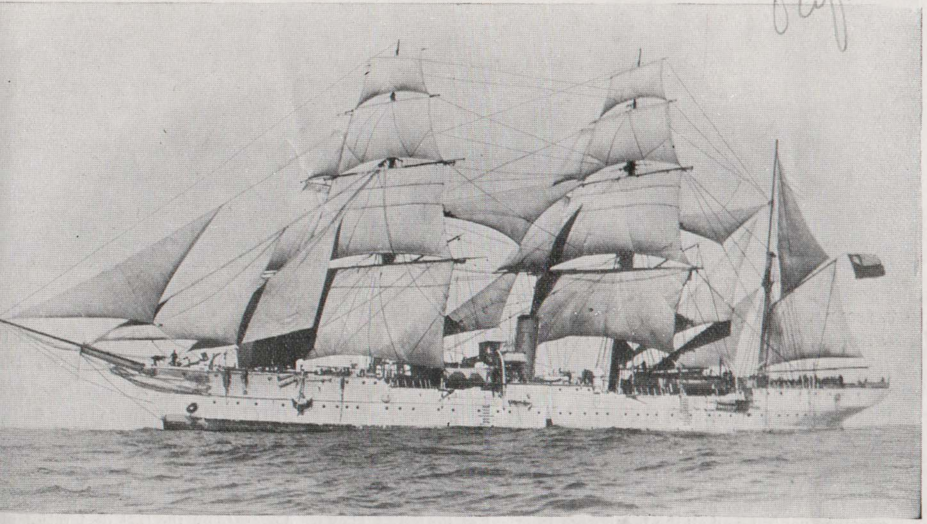
## Training Ship.

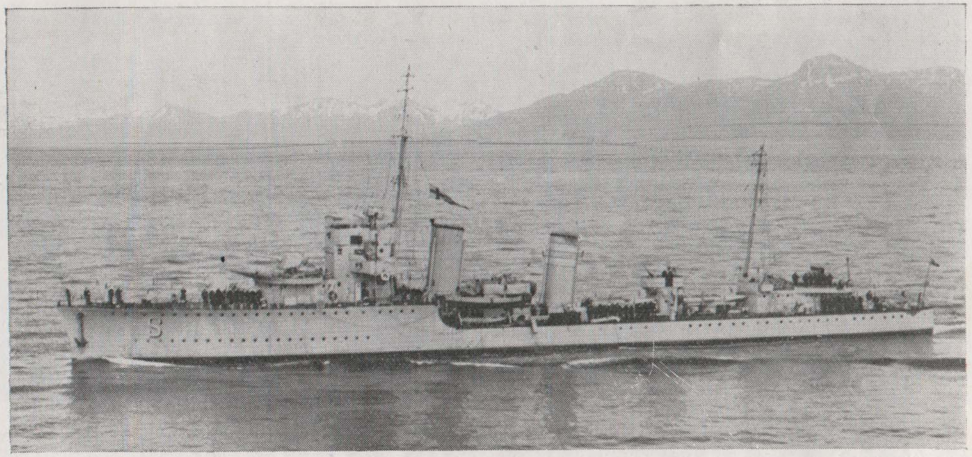
Барк



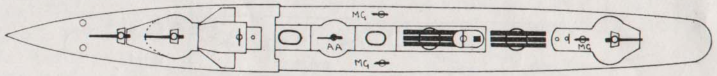
*1919 Copyright photo, G. Allan, Valparaiso.*

**NERAL BAQUEDANO** (1898). 2500 tons, sheathed and coppered. Armed with **4**—4·7 inch 40 cal., **4**—6 pdr. I.H.P. 1500 = 13·75 kts. Belleville boilers (renewed 1924). Coal: 300 tons. Built by Armstrong, Whitworth & Co. Ltd. (Refitted 1923-24.)

## 8 Destroyers.



SERRANO. 1937, *Official, courtesy Com. G. H. Trudgett.*



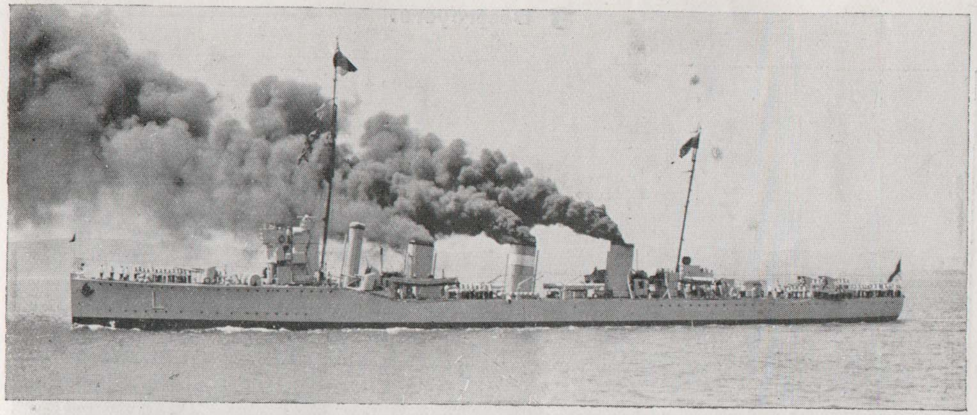
*(Plan by courtesy of Messrs. John I. Thornycroft & Co. Ltd.)*

## 6 Serrano Class.

6 *Thornycroft* type. ***Serrano*** (Jan. 25th, 1928), ***Orella*** (March 8th, 1928), ***Riquelme*** (May 28th, 1928), ***Hyatt*** (July 21st, 1928), ***Aldea*** (Nov. 29th, 1928), ***Videla*** (Oct. 16th, 1928). All laid down June-July, 1927. "Standard" displacement, 1090 tons; *full load*, 1430 tons. Dimensions: 288¼ (*p.p.*), 300 (*o.a.*) × 29 × 12⅔ feet (*maximum* draught). Guns: **3**—4.7 inch, **1**—3 inch AA., **3** M.G. 2 D.C. Throwers. Tubes: **6**—21 inch, in triple deck mountings. Machinery: Geared turbines (Brown-Curtis h.p. and cruising, Parsons l.p.). Boilers: 3 Thornycroft, 3-drum type. S.H.P. 28,000 = 35 kts. Oil fuel: 320 tons. 2 screws. Provision made for carrying mines. Complement, 130.

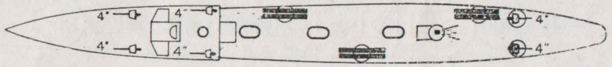
*Notes.*—These destroyers all have exceptionally good accommodation for vessels of their size, and are adapted for service in a wide range of climates. The contract, amounting to about £1,750,000, was awarded to Messrs. Thornycroft after intensive competition with many other yards, British and foreign. These vessels are named after naval officers who distinguished themselves at the battle of Iquique. Plating is galvanised throughout, and the heavy hull scantlings reduce the stresses to even less than those allowed by British Admiralty practice. All exceeded their contract speed on trials.

## 2 Almirante Class.



ALM. LYNCH

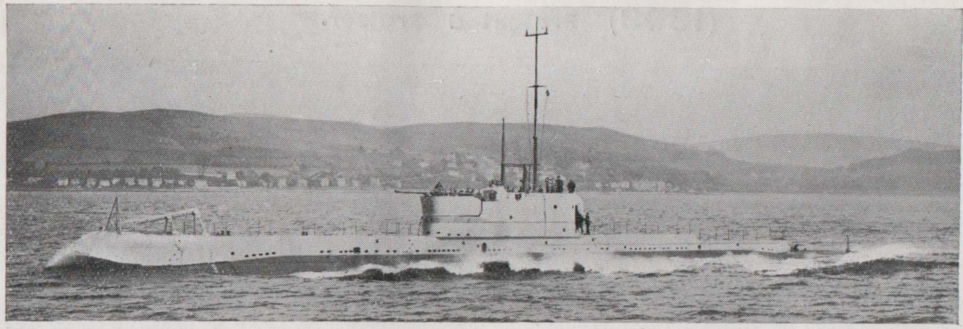
1934 *Photo, Official.*



2 *White* : **Almirante Lynch** (1912), **Al. Condell** (1913). Dimensions: 320×32½×11 feet. *Normal* displacement: 1730 tons. *Full load:* 1850 tons. Armament: **6**—4 inch, **4** M G., **6**—18 inch tubes. Designed H.P. 30,000 = 31 kts. Turbines : Parsons. Boilers: White-Forster. 3 screws. Fuel: 427 tons coal + 80 tons oil = 2750 miles at 15 kts. Trials: *Al. Lynch*, 31·8 kts. (6 hours); *Al. Condell*, 33·4 kts. Complement, 160.

*Note to Illustration.*—First letter of name painted on bow for identification purposes, *e.g.*, *L = Lynch*, *C = Condell.*

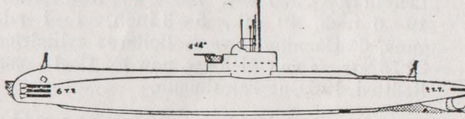
## Submarines.



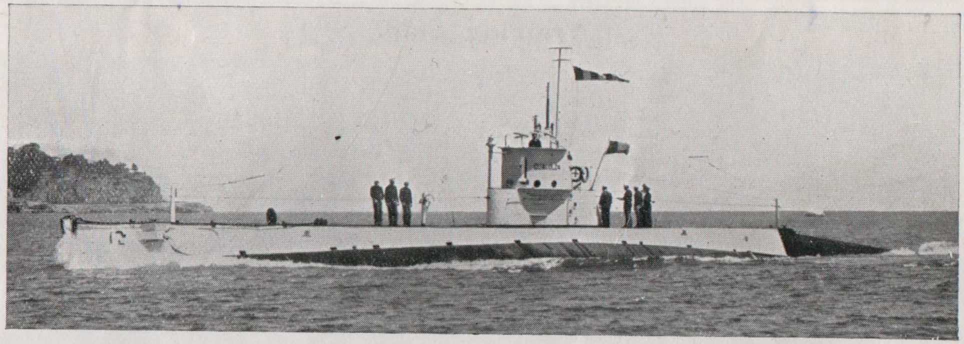
1930 *Photo, Courtesy of Messrs. Vickers-Armstrongs.*

3 *Vickers-Armstrongs*: **Capitan O'Brien** (October 2nd, 1928), **Capitan Thompson, Almirante Simpson,** (Jan. 15th, 1929). Displacement $\frac{1540}{2020}$ tons. Dimensions: 260 × 28 × 13½ feet draught. H.P. $\frac{3000}{1300} = \frac{15}{9}$ kts. Fuel: 200 tons. Guns: **1**—4·7 inch. Tubes; **8**—21 inch (6 bow, 2 stern). Of same general design as British "O" type. All 3 laid down at Barrow-in-Furness, Nov. 15, 1927 : completed June 19, 1929 (*O'Brien*); Aug. 24, 1929 (*Thompson*): and Sept. 14, 1929 (*Simpson*).

CAP. O'BRIEN TYPE.



Plan of Holland boats, below, generally resembles that of U.S. "O" and "R" classes.



GUALCOLDA.

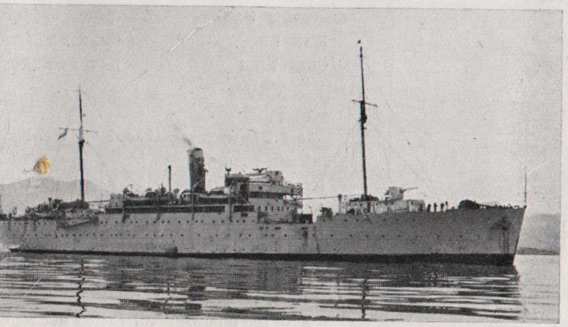
1933 *Photo, Official.*

**Gualcolda** (H 1.) **Tegualda** (H 2.) **Rucumilla** (H 3.) **Guale** (H 4.) **Quidora** (H 5.) **Fresia** (H 6.)

6 *Holland Type* (Electric Boat Co. design): (Fore River Co., U.S.A., 1915-17). Displacements: $\frac{364}{435}$ tons. Dimensions: 150¼ × 15¾ × 12⅓ feet. H.P. $\frac{480}{620} = \frac{12.75}{10.25}$ kts. Machinery: *for surface* 2 sets 240 H.P. Nelseco Diesel engines. Endurance: 2800 miles at 11 kts. *on surface*; at 30 miles 5 kts. *submerged.* Oil: 17½ tons. Torpedo tubes **4**—18 inch (bow). Complement 22.

*Notes.*—These boats were originally *H 13* and *H 16—20* of the British *H 11—20* group of submarines, built by the Fore River Co., U.S.A., during 1915. The Admiralty intended to take them over and equip them with torpedo tubes at the Canadian Vickers Co. Yard at Montreal—provided that these boats could legally be delivered in an unarmed state. The U.S. Government decided the submarines could not leave any U.S. port, so long as the United States remained neutral, and all the boats were interned at Boston. They were released on the U.S. declaration of war, 1917. With the approval of the U.S. authorities, the above six boats were ceded to Chile by Great Britain, in part payment for the Chilean warships building in British yards in August, 1914, and appropriated for the British Navy.

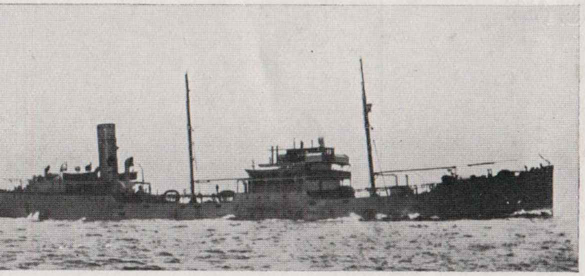
## Submarine Depot Ship.



1933 *Photo, Official.*

**CANO** (Vickers-Armstrongs, Barrow, Oct. 22, 1929).
placement : 9,000 tons. Dimensions : 390 × 55 × 16½ feet
ught. Guns : **2**—4·7 inch, **2**—3 inch AA. S.H.P. : 2,400
13 kts. Machinery : Parsons geared turbines. 1 screw.
al : 670 tons. Has accommodation for 585, including crews
attached submarines. Laid down, March 1, 1929, and
npleted March, 1930. Has since had a seaplane added to
equipment.

## Oilers.

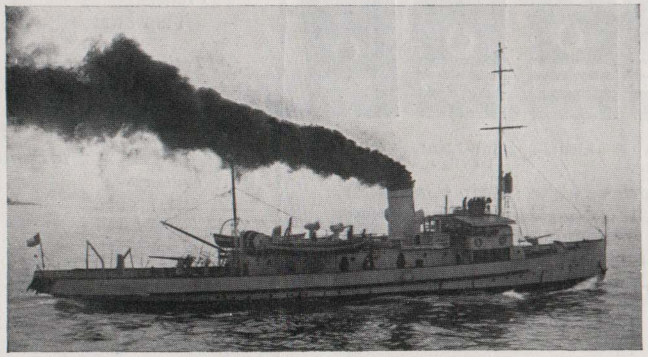


CAGUA 1930 *Photo.*

**D** (Jan., 1930), **RANCAGUA** (Nov., 1929). Both built
Vickers-Armstrongs, Ltd., on the Tyne. Displacement :
15 tons (3,800 tons *gross*). Complement : 54. Dimensions :
× 49¾ × 22½ feet draught. Guns : **2**—4·7 inch. I.H.P. :
00 = 15 kts. Machinery : Triple expansion. 2 screws.
E. boilers. Oil fuel : 725 tons. Laid down in March, 1929.
npleted in March, 1930. Are distinguished by initials of
nes painted on bows.

## Coastguard Vessels (*Escampavias*).

(Some of these are now employed in Surveying service)



ELICURA. 1931 *Photo, Official.*

**LEUCOTON** (1919), built by Sandvikens Skeppsdocka Co., Helsingfors ; **ELICURA** (1919) and **OROMPELLO** (1919), both built by Maskin och Brobyggnads Co., Helsingfors. All were completed 1919. 530 tons. Length (*o.a.*), 172·6 feet. Beam, 24·6 feet. *Maximum* draught, 11 feet. Guns : **2**—3 inch. I.H.P. 1400 = 14½ kts. speed. 2 sets triple expansion engines. 2 screws. Boilers : 3 cylindrical. Coal capacity : *Leucoton* 56 tons ; *Elicura* and *Orompello*, 65 tons. Complement, 42. Refitted by Messrs. J. Samuel White & Co., Cowes, 1920.

**MICALVI** (ex-*Bostonlincs*, ex-*Bragi)* (Ostsee Werft, Stettin, 1925). Displacement 850 tons. (612 tons *gross*). Dimensions : 181½ × 28¾ × 11 feet. Triple expansion engines. I.H.P 380 = 9·5 kts.

**YELCHO** (1906). Displacement : 467 tons. Dimensions : 128 × 23 × 9½ feet. Speed : 12 kts.

Lighthouse Tender **CONDOR.** Iron and wood. Built in Marseilles, 1889. Large refit 1927. Displacement : 145 tons. Dimensions : 102 × 18⅔ × 9 feet. Speed : 9 kts. Coal : 20 tons.

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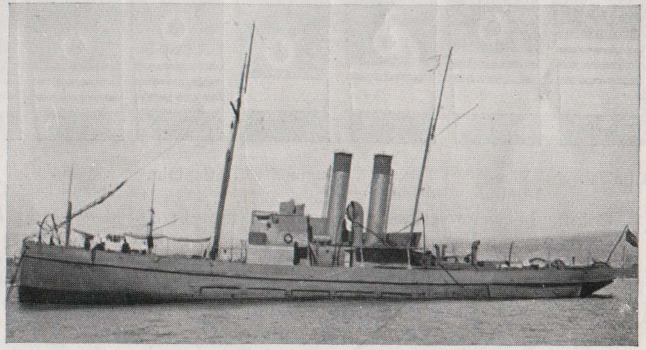
*Note.*—Old Ironclad, *Huascar* (1865), still exists at Talcahuano, as flagship of the Port Admiral there.

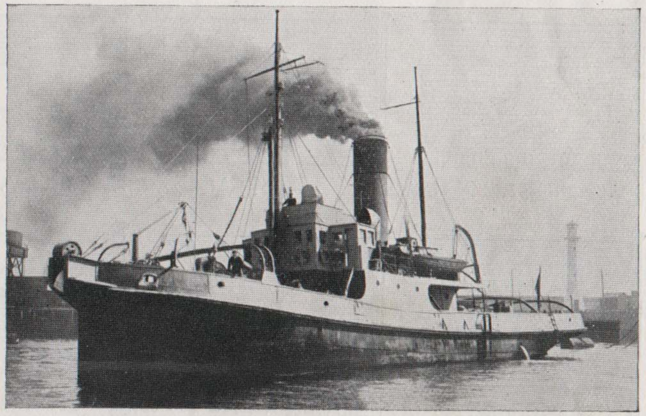
## Seagoing Tugs (*Remolcadores*).



1931 *Photo, Official.*

**PILOTO SIBBALD** (1916), built by Bow, McLachlan & Co., Paisley. Displacement : 1,100 tons. Dimensions : 141¾ × 28¾ × 11 feet. Machinery : Triple expansion. 2 screws. 2 cylindrical boilers. I.H.P. : 1,200 = 11½ kts. Coal capacity : 145 tons. Complement, 18. Possesses fire fighting and salvage equipment.

*Note.*—During the War this vessel was taken over by the British Navy, in which she served as the *Stoic.* Re-acquired by Chile in 1920.

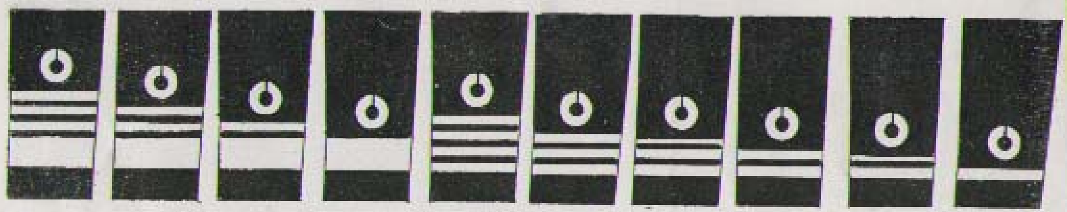


SOBENES. 1931 *Photo, Official.*

**SOBENES, CABRALES** (1929), **COLOCOLO, GALVARINO** and **JANEQUEO** (1930) built by Bow McLachlan. Displacement : 790 tons. Dimensions : 126½ × 27 × 12 feet (*mean*). I.H.P. 1050 = 11 kts. Coal capacity : 130 tons.

# CHINA.

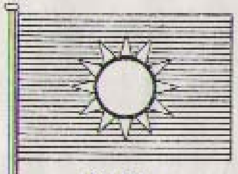
## Uniforms.

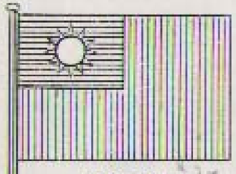

Admiral.
Vice-Admiral.
Rear-Admiral.
Commodore.
Captain.
Commander.
Lieut.-Comm'r.
Lieut.
Sub-Lieut. 1st Class.
Sub-Lieut. 2nd Class.

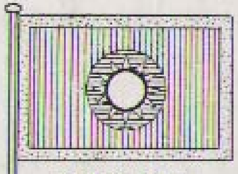
Colour between stripes:—*Engineers* (none); *Surgeons*, red; *Paymasters*, white; *Ship Constructor*, purple; *Navigating Officers*, light indigo blue; *Ordnance*, Pink; *Wireless*, Mauve; *Bandmasters*, Green; *Judge Advocates*, Grey. All these branches *without* the curl or emblem over top stripe. *Aviation*, no colour between stripes, but Gold Eagle replaces emblem above stripe.

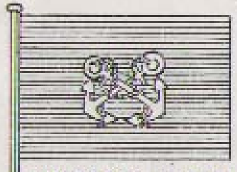
*Minister of the Navy:*—Admiral S. K. Chen. *Vice-Ministers of the Navy:*—Vice-Admiral C. L. Chen, Vice-Admiral H. Y. Chen.

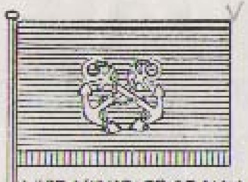
## Flags.

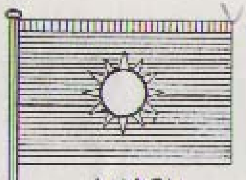

JACK.

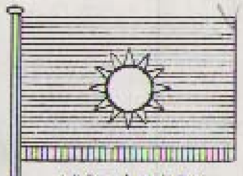

ENSIGN.

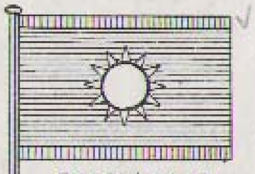

PRESIDENT.

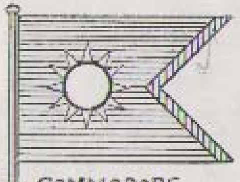

MINISTER OF NAVY.

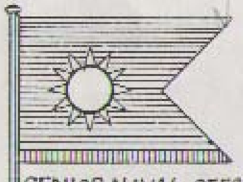

VICE MINISTER OF NAVY.

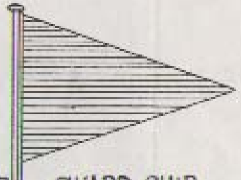

ADMIRAL.

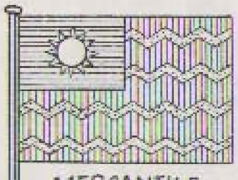

VICE-ADMIRAL.


REAR-ADMIRAL.


COMMODORE.


SENIOR NAVAL OFFCER


GUARD SHIP.


MERCANTILE.

▥ RED. ▤ BLUE. ⬚ YELLOW. ☐ WHITE. ■ BLACK.

## Mercantile Marine.

(From "Lloyd's Register" 1937 figures.) 289 Vessels of 600,336 *Gross* Tonnage.

## Distribution of Chinese Warships, 1937

### *Training Squadron*

*Cruiser*—
Ying Swei

*Training Cruiser*—
Tung Chi

### *1st Squadron*

*Cruisers*—
Hai Yung
Hai Chou
Ning Ha
Ping Hai

*Sloops*—
Yat Sen
Ta Tung
Tze Chion
Yung Chien
Yung Chi

*Gunboat*—
Chung Shan

*Torpedo Boat*—
Chien Kang

*Transports*—
Ting An
Kieh An

### *2nd Squadron*

*Gunboats*—
Ming Sen
Ming Chun
Hsien Ning
Chu Tai
Chu Yiu
Chu Tung
Chu Chien
Chu Kuan
Kiang Yuan
Kiang Chen

*Seaplane Carriers*—
Wei Sheng

*River Gunboats*—
Kiang Hsi
Kiang Kun

*Torpedo Boats*—
Hu Peng
Hu Oah
Hu Ying
Hu Chun

### *Coastguard Flotilla*

*River Gunboats and Patrol Vessels*—
Kiang Ning
Hai Ning
Sui Ning
Wu Ning
Suh Ning
Wei Ning
Chung Ning
Yi Ning
Chien Ning
Chang Ning
Yi Sheng
Shun Sheng
Jen Sheng

### *Under Hydrographic Depa*

*Surveying Vessels*—
Kan Lu
Chin Tien
Chen She
Kung She

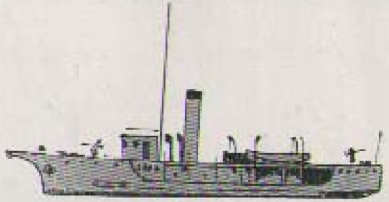
### *3rd Squadron* (based on Wei-

*Gunboats*—
Kiang Li
Chu Yu
Yung Hsi

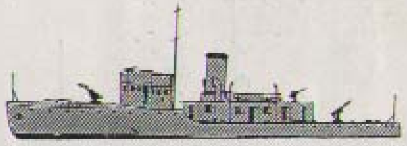
*Torpedo Boat*—
Tung An

Also the following, allocation not r

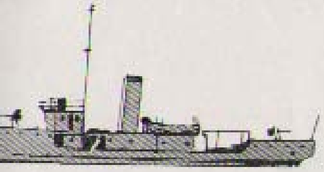
*Cruisers*—
Hai Chi
Hai Shen
Chao Ho



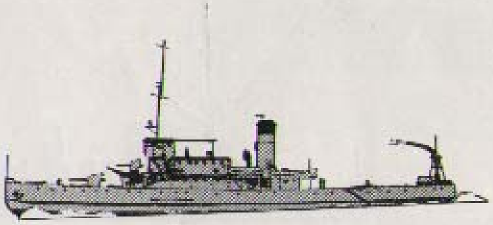
Kung-Sheng.
Jen-Sheng.



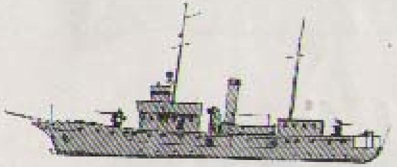
Hai-Ning *class.*
10.



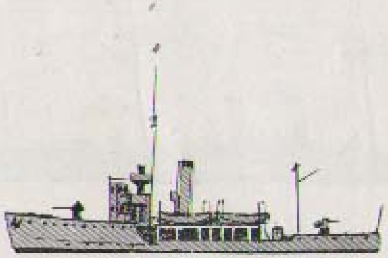
Yi Sheng.
Chen-Sheng.



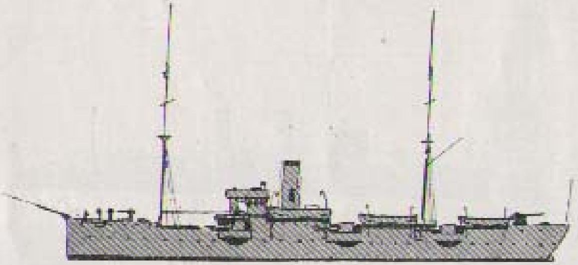
Wei-Sheng.



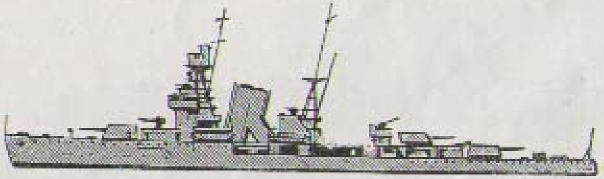
Chien-Tien.



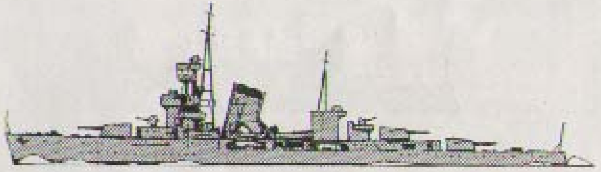
Shun-Sheng.



Tung-Chi.

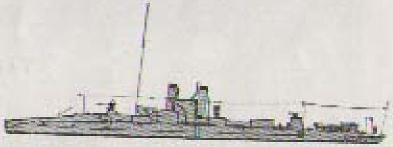


Ning-Hai.

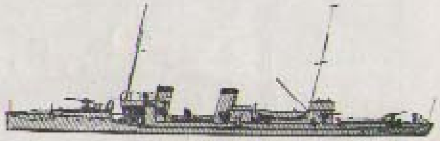


Ping-Hai.

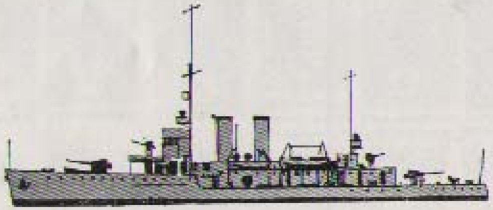
**Torpedo Craft.**

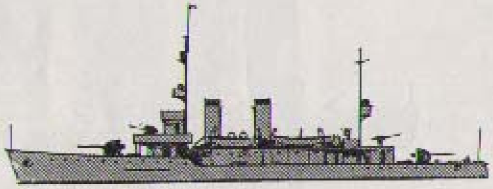


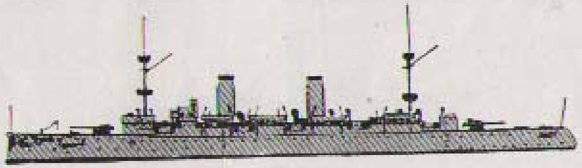
T.B. 7, 8, 9, 10.

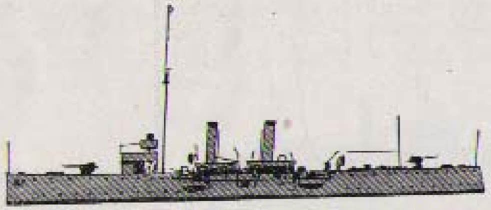


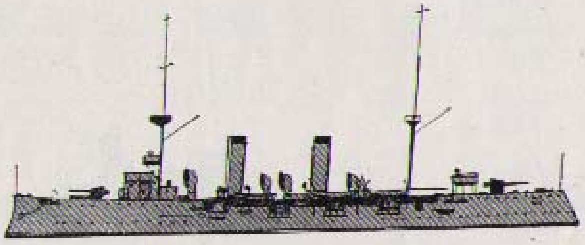
Chien-Kang, Tung-An.

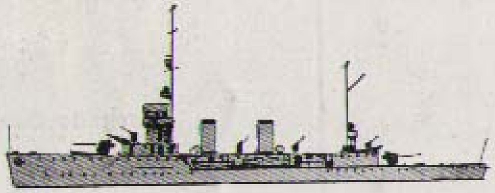

Hsien Ning, Ming Chun

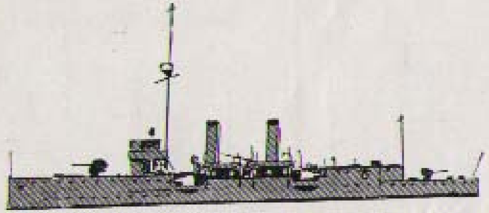

Ming Sen.

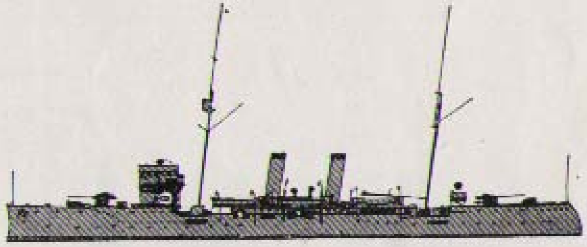

Hai Chi.

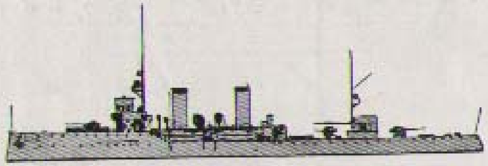

Yung Chien, Yung Chi.

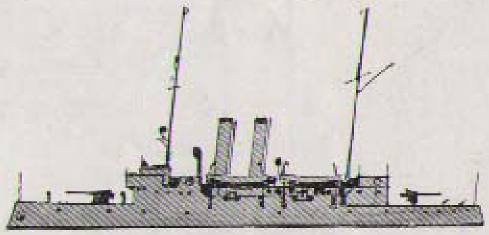

Hai Yung, Hai Chou, Hai Shen.


Yat Sen.

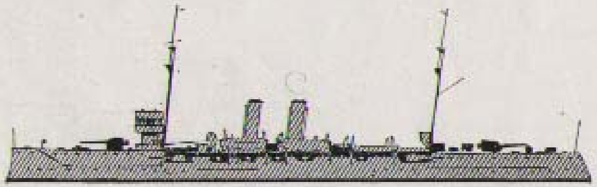

Chung Shan, Yung Hsiang.


Ying Swei.


Ta Tung, Tze Chion.


Kiang Chen *class.*

Chu Chien *class* (with prominent forebridge).


Chao Ho.

**NOTE.**—According to Japanese claims, **NING HAI** was sunk and **PING HAI** beached, in a badly damaged condition, in September, 1937.

**NING HAI** (Harima S.B. Co., Japan. 1931).

**PING HAI** (Kiangnan Dock Co., Shanghai. 1932).

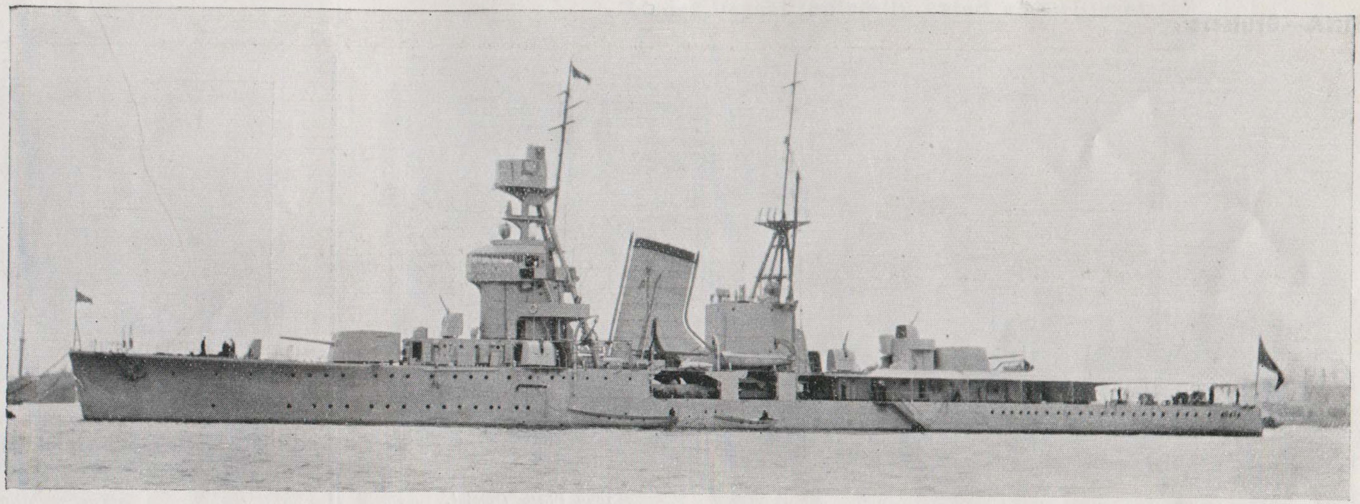
Displacement, 2500 tons. Complement 340.

Dimensions 350 (*p.p.*) 360 (*o.a.*) × 39 × 13 feet.

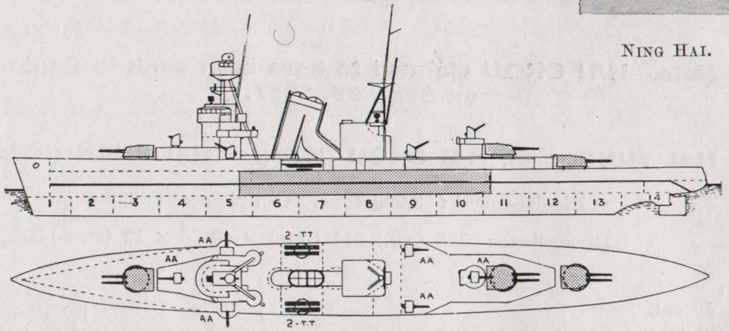
:
-5·5 inch.
-3·5 inch, Krupp A.A.
*Ping Hai*, only 3.
-M.G.

s:
-21 inch.
aft:
-

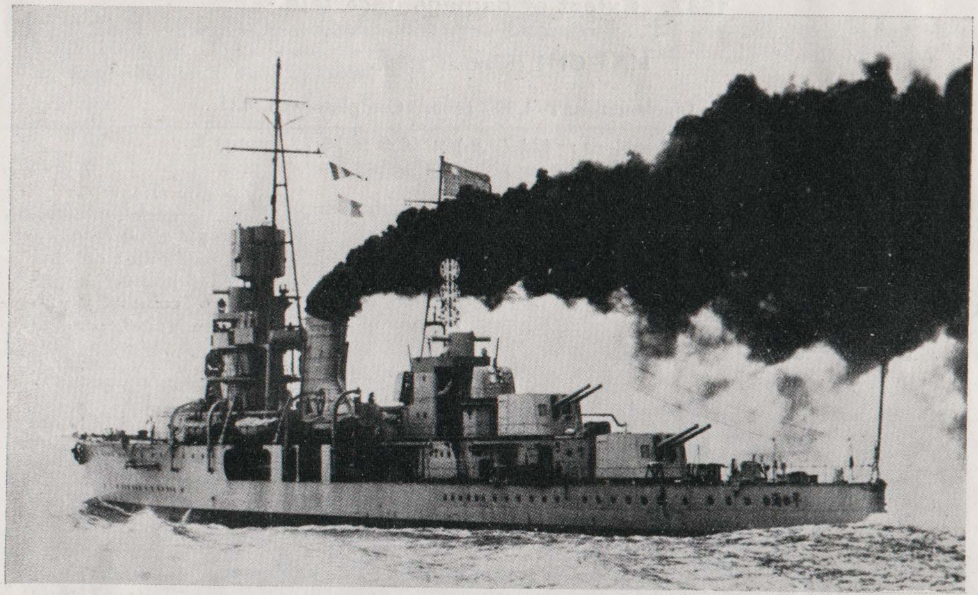
Protection:
Thin plating on gun houses
and side amidships.
1″ deck.



NING HAI. 1934 *Photo.*

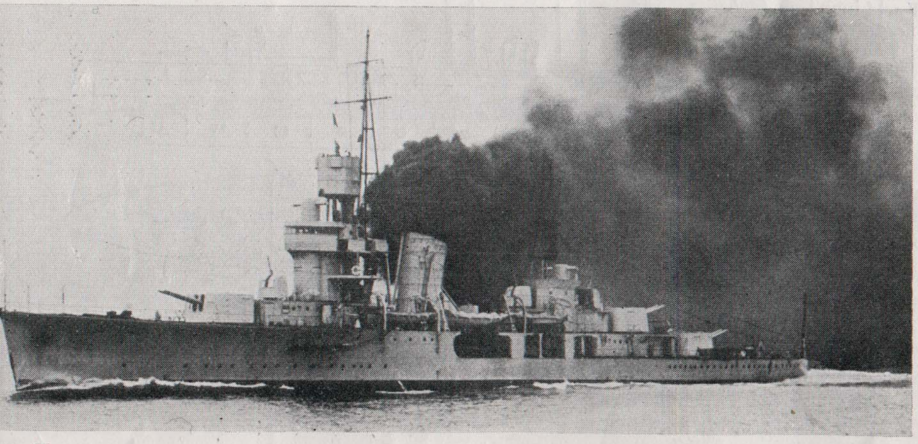


Machinery: Geared turbines. H.P. 9500 = 22¼ kts. (*Trials*, 10,500 = 24 kts.) Coal fired.



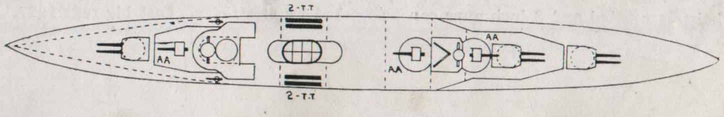
PING HAI. 1937, *Courtesy Admiral S. K. Chen.*

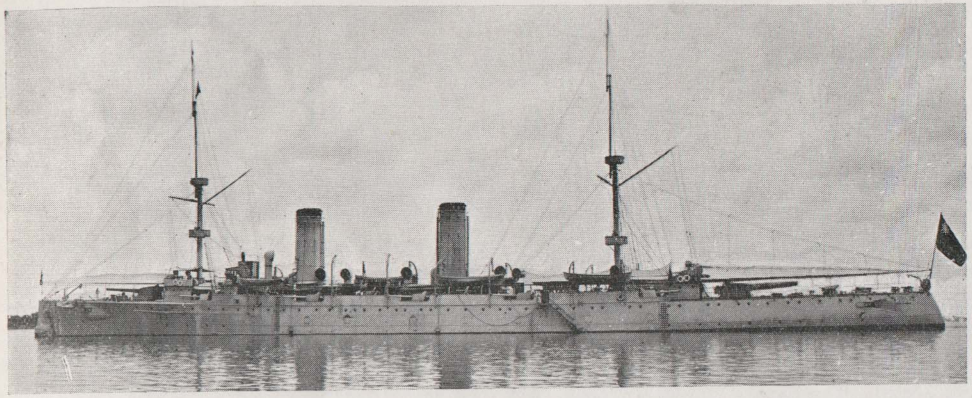
*General Notes.*—This design is an exceedingly interesting production, displaying considerable originality. One plane is stowed in hangar at base of main mast. *Ping Hai*, though laid down on July 9, 1931, was not completed till late in 1936, construction having been suspended in 1933. Machinery and main armament of these ships were supplied from Japan.



ING HAI. 1937, *Courtesy Admiral S. K. Chen.*

PING HAI.





1932 *Photo, Official.*

**Special Note.—This ship was stranded at Kiangyin, on the Yangtse, Sept. 25, 1937. Extent of damage uncertain.**

## HAI CHI (Elswick 1898).

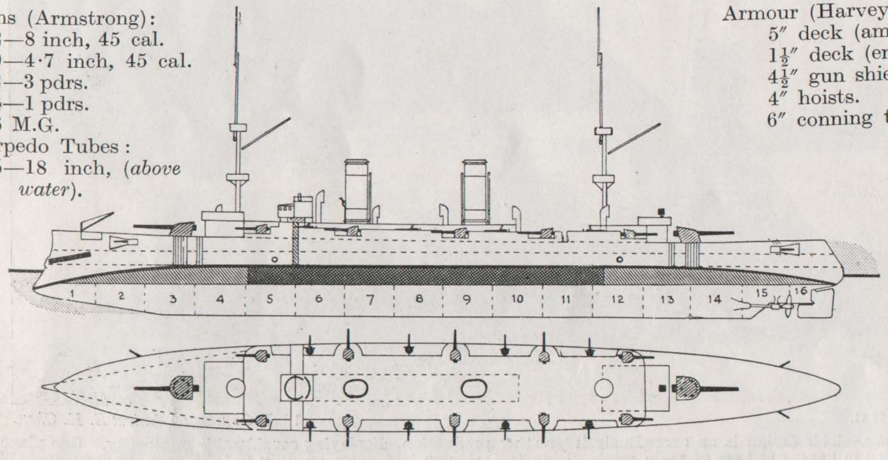
Displacement: 4,300 tons. Complement: 431.

Dimensions: 424 (*p.p.*) × 46·9 × 16·75 (*mean*) ft.

Guns (Armstrong):
- 2—8 inch, 45 cal.
- 10—4·7 inch, 45 cal.
- 12—3 pdrs.
- 4—1 pdrs.
- 6 M.G.

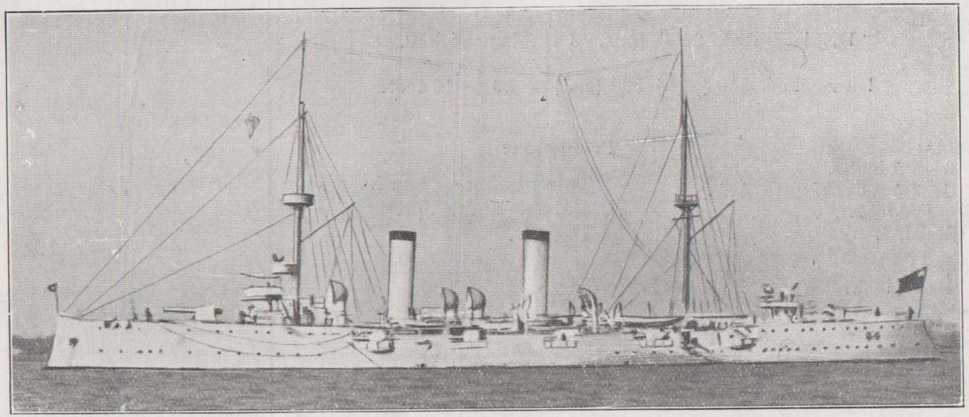
Torpedo Tubes:
- 5—18 inch, (*above water*).

Armour (Harvey):
- 5″ deck (amidships).
- 1½″ deck (ends).
- 4½″ gun shields.
- 4″ hoists.
- 6″ conning tower.



Machinery: 2 sets triple expansion. 2 screws. 12 cylindrical boilers.
Designed H.P.: 17,000 (*forced draught*) = 24 kts. Coal: 400/990 tons.

*Notes.*—Electric hoists are fitted and 8 inch guns can be worked by electricity. Last big refit 1927.



1929 *Official Photo.*

**Special Note.—HAI CHOU claimed to have been sunk in Canton River on Sept. 29, 1937.**

## HAI YUNG (1897), HAI CHOU (1897) and HAI SHEN (1898).

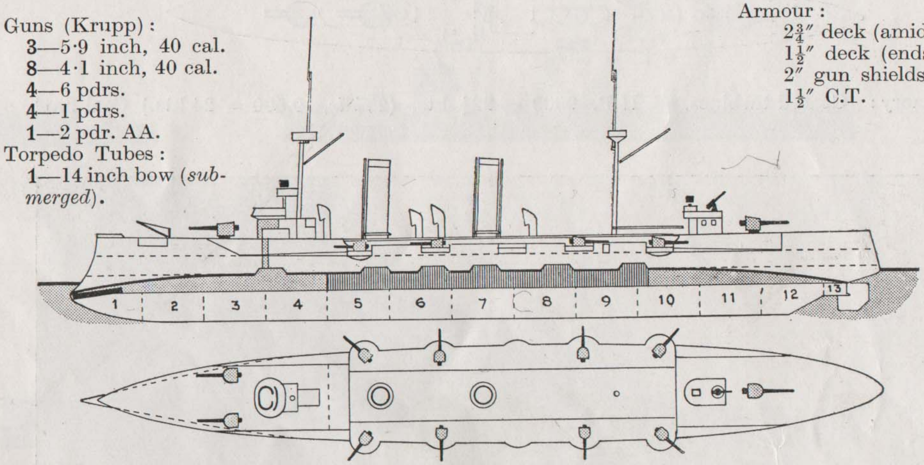
Displacement: 3,000 tons. Complement: 326–343.

Dimensions: 328 (*o.a.*) 314 (*p.p.*) × 40·75 × 19 (*max.*) ft.

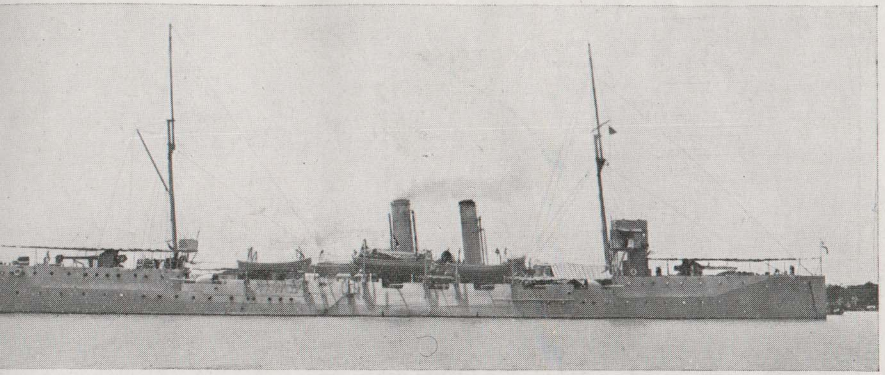
Guns (Krupp):
- 3—5·9 inch, 40 cal.
- 8—4·1 inch, 40 cal.
- 4—6 pdrs.
- 4—1 pdrs.
- 1—2 pdr. AA.

Torpedo Tubes:
- 1—14 inch bow (*submerged*).

Armour:
- 2¾″ deck (amidships).
- 1½″ deck (ends).
- 2″ gun shields.
- 1½″ C.T.



Designed H.P.: 7,500 = 19 kts. Present speed about 10 kts.
8 cylindrical boilers. Coal: 200/580 tons.
All three built by Vulcan Co., Stettin.



Ho.

1932 *Photo, Official.*

**al Note. Japanese claim to have sunk one or both of these ships at on Sept. 14, 1937.**

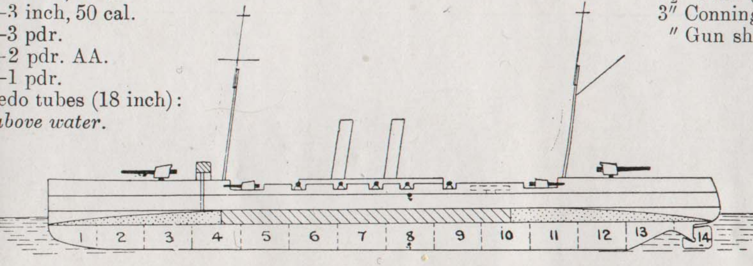
## YING SWEI (July, 1911) & CHAO HO (Oct., 1911).

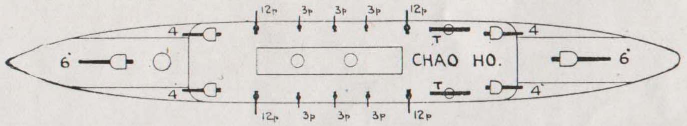
*mal* displacement, 2460 tons ; *full load* { *Ying Swei* : 2,750 tons. / *Chao Ho* : 2,600 tons. } Complement, 334.

: Length (*p.p.*), 330 feet, (*o.a.*) 346 feet. Beam, 39½ feet. *Max* load draught, 14 feet 11 ins.
,, 320 ,, ,, 39 ,, ,, ,, 14 ,,

(*see Notes*) :
-6 inch, 50 cal.
-4 inch, 50 cal.
-3 inch, 50 cal.
-3 pdr.
-2 pdr. AA.
-1 pdr.
edo tubes (18 inch) :
*bove water.*

Armour :
3″ Deck(amidships) ▨
1½″ Deck (ends) ... ⠿
3″ Conning tower ▨
″ Gun shields......





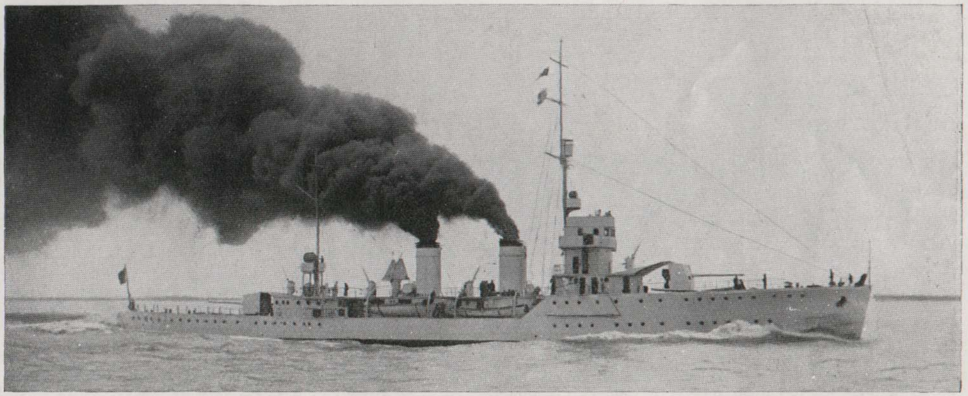
nery : Parsons turbine. Boilers : see notes. 4 screws. Designed H.P. 6000 = 20 kts. Coal :
20 tons ; *maximum* : 550 tons. Oil : 50 tons in *Ying Swei*, 100 tons in *Chao Ho*. Endurance :
)—5000 miles at 10 kts., and about 2900 miles at 18 kts.

*Notes.*—Vickers models in *Ying Swei* ; Armstrong in *Chao Ho.*

*ote* :—Both ships employed as seagoing training vessels.

| | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials (light)* ⅘ths | *Full power* | *Boilers* |
|---|---|---|---|---|---|---|---|
| *i* | Vickers-<br>Armstrong | Vickers<br>Hawthorn | 1910<br>1910 | 1912<br>1912 | 5394 = 20·7<br>... | 8797 = 22·23<br>8622 = 22·12 | White-F. + cyl.<br>6 Yarrow |

## Escort Vessel (officially rated as Cruiser).

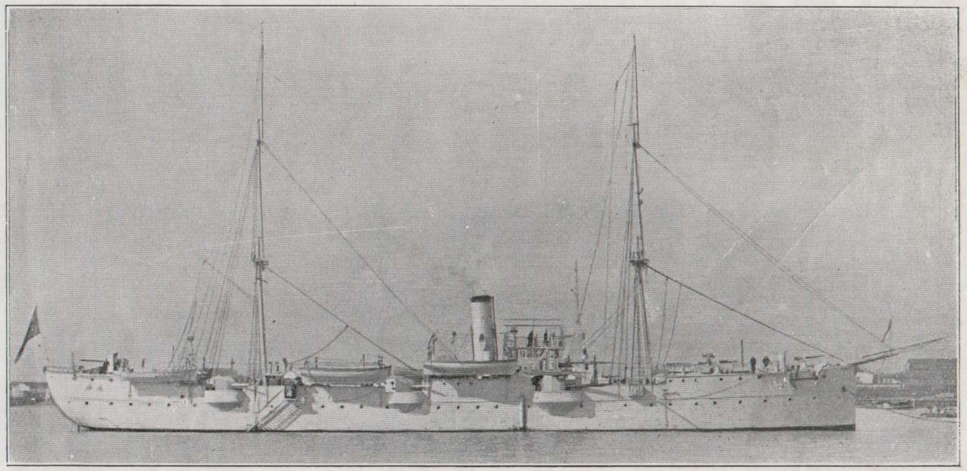


1931 *Photo, Official.*

**(This ship is reported to have been set on fire and stranded near Nanking on Sept. 25, 1937).**

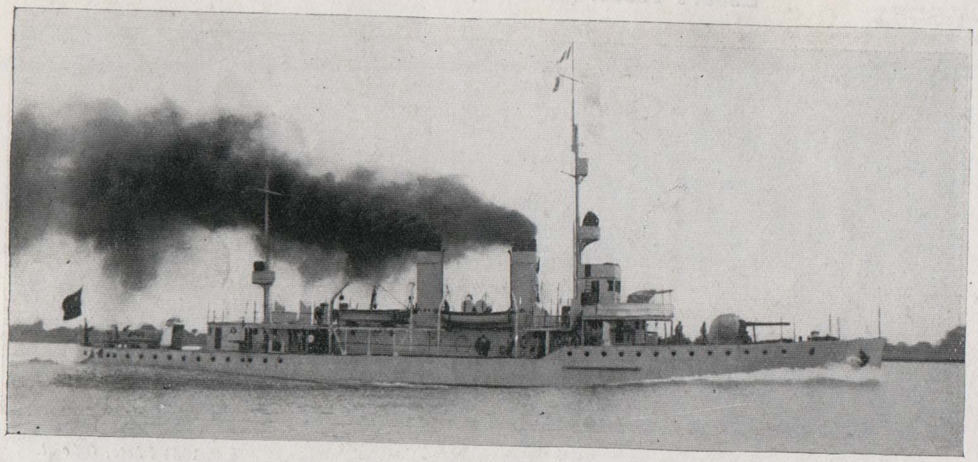
**YAT SEN** (1930). Displacement : 1,650 tons. Dimensions : 275 (*o.a.*), 252 (*p.p.*) × 34 × 11 feet. Complement : 173. Guns : 1—6 inch, 1—5·5 inch, 4—3 inch AA., 2—3 pdr., 4 M.G. H.P. 4000 = 20 kts. Coal : 280 tons.

## Training Ship (ex-Cruiser).



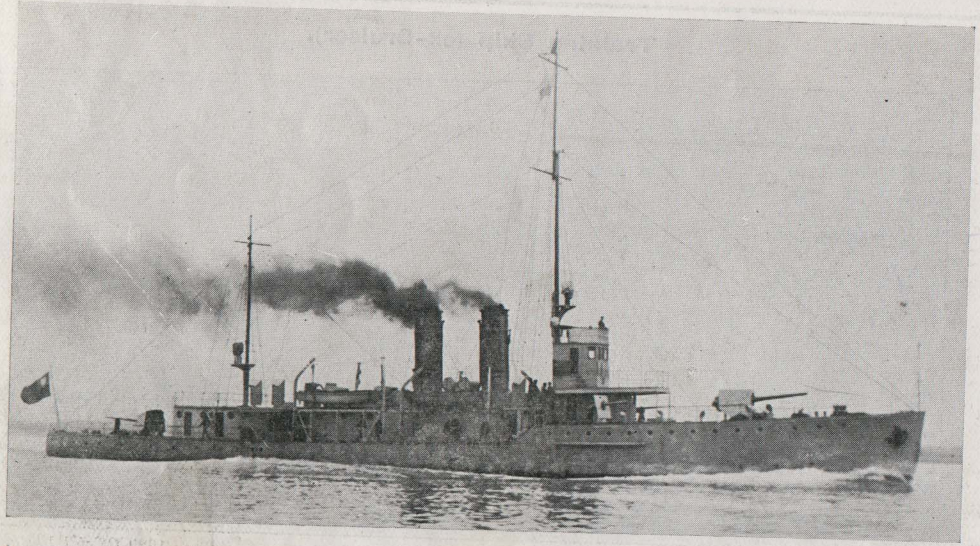
1929 *Official Photo.*

**TUNG CHI** (1895). Steel. 1900 tons. Dimensions : 252 × 34 × 16 feet. Guns : 2—6 inch, 5—4·7 inch, 3—6 pdr., 8—1 pdr. H.P. 1600 = 10·5 kts. 1 screw. Complement, 335. Built as a cruiser at Foochow, 1892-96, and later appropriated for training purposes.

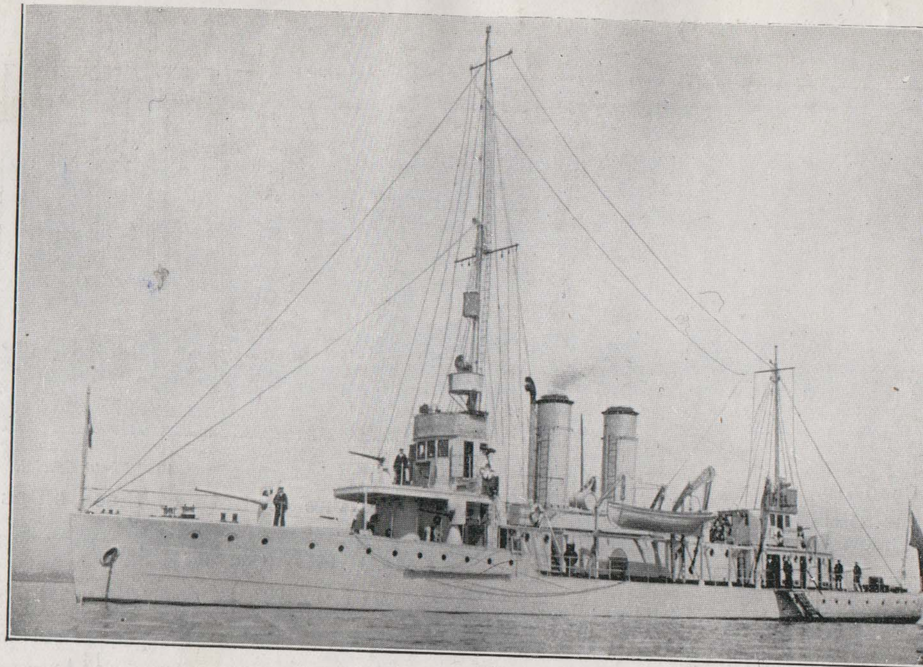


1931 *Photo.*

**MING-SEN** built by Kiangnan Dock Co., Shanghai, 1931. Displacement : 600 tons. Dimensions: 210×27×6½ feet. Guns : 1—4·7 inch, 1—4 inch, 1—3 inch AA., 2—6 pdrs. Speed : 18 kts. Coal : ? tons. Complement: 115.

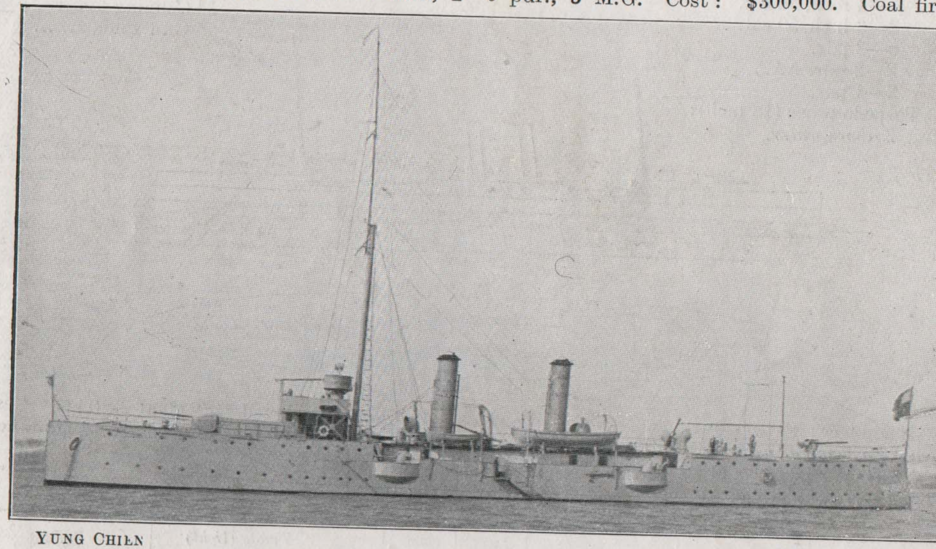


**MING CHUN** (1929). Displacement: 550 tons. Complement: 115. Dimensions : 196¾ × 26 × 6 feet (*mean*). H.P.: 2200 = 17·3 kts. Guns : **1**—4·7 inch, **1**—4 inch, **1**—3 inch AA., **2**—6 pdr., **1**—1 pdr. pom-pom, **4** M.G. Coal fired.



1929 *Official Photo.*

**HSIEN NING** (Kiangnan Dock Co., Shanghai, Aug. 16, 1928). Displacement: 418 Complement: 115. Dimensions : 170 (*p.p.*), 180 (*o.a.*) × 24 × 6½ feet. H.P.: 2500 kts. Guns : **1**—4·7 inch, **1**—3 inch, **2**—6 pdr., **5** M.G. Cost : $300,000. Coal fir



Yung Chien

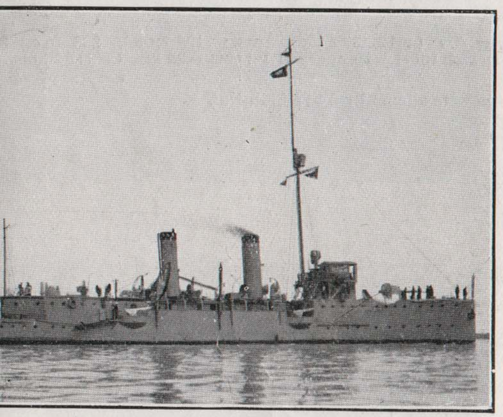
1929 *Official Photo.*

**(One of these ships reported sunk).**

**YUNG CHIEN, YUNG CHI** (Built 1915, by Kiangnan Dock Co., Shanghai). 860 to Dimensions : 205 (*p.p.*), 215½ (*o.a.*) × 29½ × 11½ feet. Guns : **1**—4 inch, **1**—3 in **4**—3 pdr., **2**—1 pdr., **1**—2 pdr. AA. Designed H.P.: 1350 = 13 kts. Coal : 150 to Complement: 105.

*Photo wanted*

(ex-*Hai Li*, ex-*Stiges*, ex-*Noemi*, ex-*Lila*, ex-
*ıtstemon*). (Workman, Clark & Co., Belfast, 1916).
ent, 1,250 tons. Dimensions: 255¼ (*pp.*), 267¾
½ × 11 feet (*mean* draught). Guns: **2**—4·7 inch
present armament unknown. Machinery: Triple
I.H.P. 1,400=17 kts. 2 cylindrical boilers. Coal:
Is not attached to Chinese Navy in peace time,
r Salt Administration.

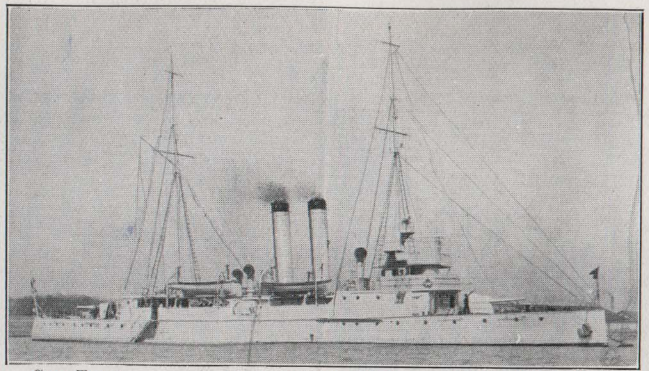


1928 *Photo.*

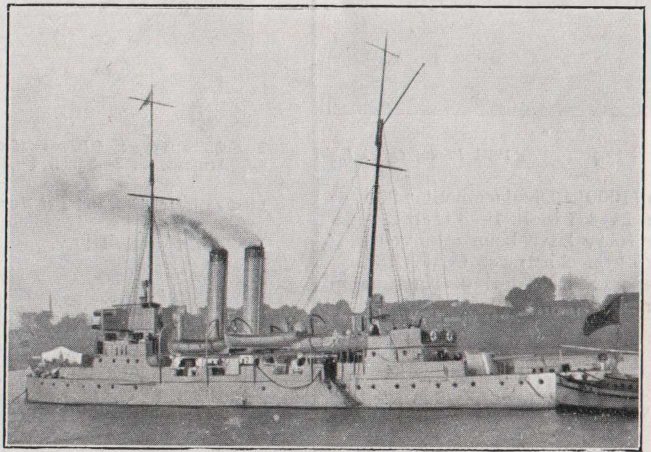
**AN** (ex-*Yung Feng*), **YUNG HSIANG** (Kawasaki
Japan, 1912–13). 830 tons. Dimensions: 205 (*pp.*)
feet. Guns: **1**—4 inch, **1**—3 inch, **4**—3 pdr.,
H.P.: 1,350 = 13·5 kts. Coal: 190 tons. 2 screws.
t: 105. 1 inch steel protective deck.

rance, see "Fighting Ships," 1930, p. 388.

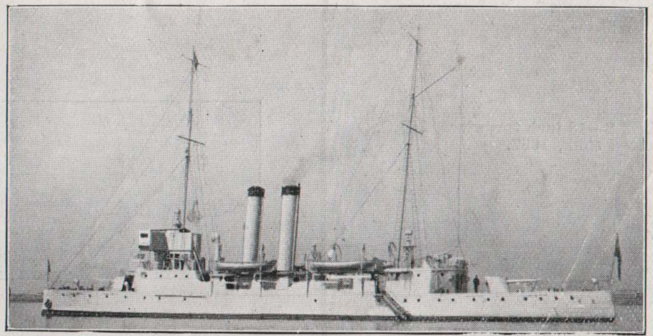
rtuguese *Patria*). (Lisbon, July, 1903.) Displace-
tons. Dimensions: 196¾ × 28¾ × 8½ feet. Guns:
**6**—3 pdr., **2**—1 pdr. Machinery: Triple expansion.
75 = 15 kts. Niclausse boilers. Purchased 1930.



CHU TUNG. (Note gaff on main) 1929 *Official Photo.*



CHU KUAN. (Note superstructure aft.) 1929 *Photo.*



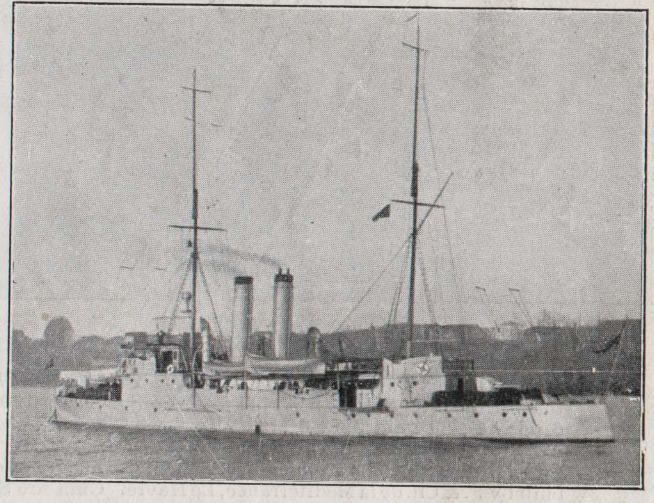
CHU YU. 1929 *Official Photo.*

**CHU CHIEN.** **CHU TAI.** **CHU YU.**
**CHU KUAN.** **CHU TUNG.** **CHU YIU.**

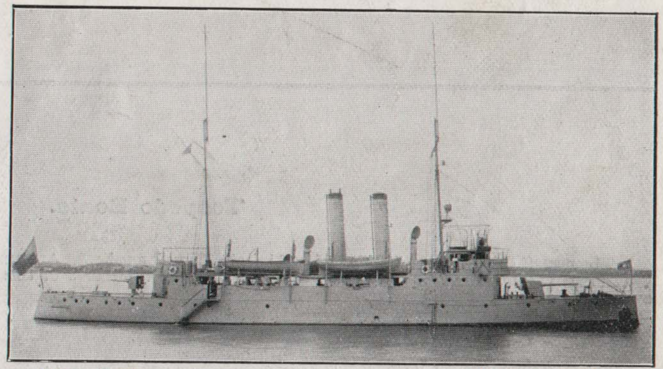
(For description see next column.)

All built by Kawasaki Yard, Kobé, 1906-07. 740 tons. (*Chu Yu*, 745 tons.) Complement: 123-135. Dimensions: 200 × 30 × 8 feet. Armament: **2**—4·7 inch, **2**—3 inch, **3**—6 pdr., **1**—2 pdr. AA., **2** M.G. (*Chu Yu* has **5**—9 pdr., **4**—1 pdr., **1**—1 pdr. AA. in place of latter 3 items.) Machinery: 2 sets vertical triple expansion. 2 screws. Boilers: Water-tube. Designed H.P.: 1350 = 11 kts. (*Chu Yu*, 12 kts.). Coal: 150 tons.

*Note.*—Several of these vessels have been fitted with additional protection for gun crews. Speed in some cases is only about 9 kts. now.



KIANG CHEN. 1929 *Photo.*

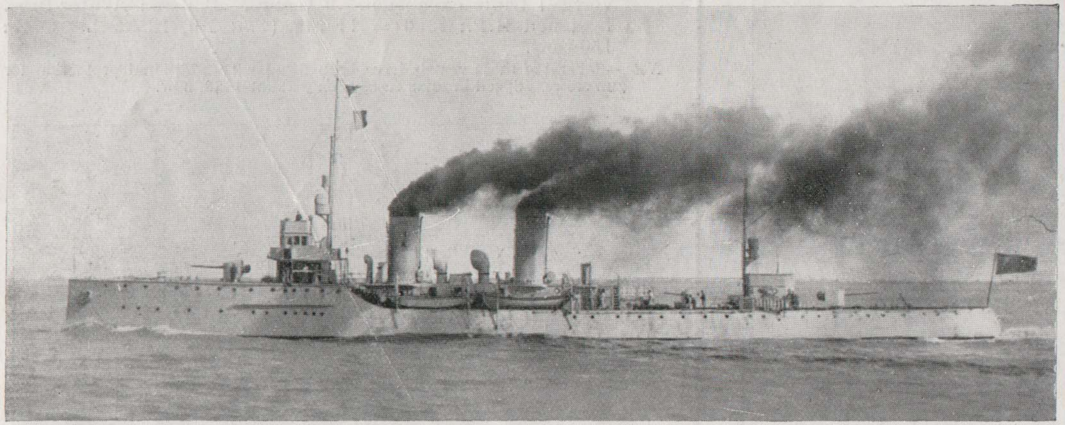


KIANG YUAN. 1929 *Official Photo.*

**KIANG CHEN.** **KIANG LI.**
**KIANG HENG.** **KIANG YUAN.**

All built by Kawasaki Yard, Kobé, 1906-07. 550 tons. Complement: 106-123. Dimensions: 170 (*p.p.*), 180 (*o.a.*) × 28 × 7 feet. Armament: **1**—4·7 inch (bow), **1**—3 inch (aft), **4**—3 pdr., **4**—Maxims. Machinery: 2 sets vertical triple expansion. 2 screws. Boilers Water-tube. Designed H.P.: 950 = 13 kts. (reduced to 10 kts. in some). Coal: 113 tons.

## Gunboats—*continued*



Ta Tung. 1931 *Photo, Official.*

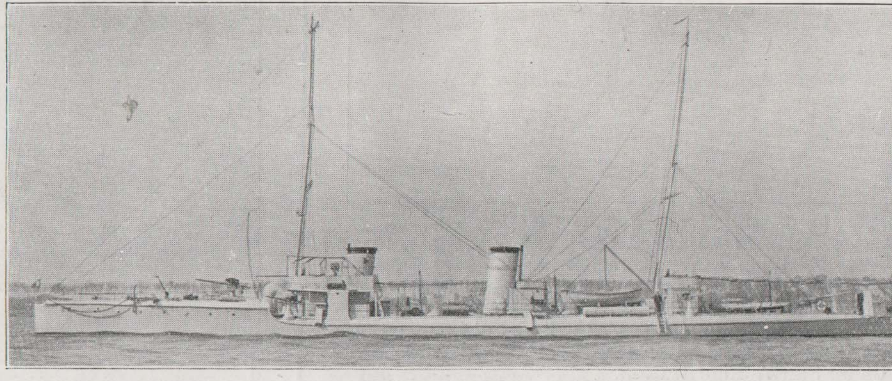
**TZE CHION** (ex *Chien Wei*) (1902) and **TA TUNG** (ex *Chien An*) (1900). Displacement: 900 tons. Dimensions: 260 × 27 × 11 feet. Complement: 150. Guns: 2—4·7 inch, 1—3 inch, 2—6 pdr., 1—20 mm. AA., 6 M.G. Torpedo tubes: 2 *above water* (may have been removed). Armour: 1″ belt and deck (amidships). Designed H.P. 6000 = 20 kts. 2 screws. Coal: 180 tons. Built at Foochow under direction of M. Doyère, who was responsible for design. Engines built by F. & Ch. de la Mediterranée, Le Havre. Guns are Schneider-Canet. Completely re-built 1930–31.

## Torpedo Boats.

1 *Thornycroft* C.M.B. *type:* (1936). 55 × 11 feet. Complement: 5. Armament: 2 M.G., 2—18 inch torpedoes, 2 D.C. B.H.P.: 1,000 = 45 kts. (46 kts. exceeded on trials). Other 3 of this type reported sunk, 1937.

2 *Italian* M.A.S. *type:* No particulars received.

## Torpedo Boats—*continued.*

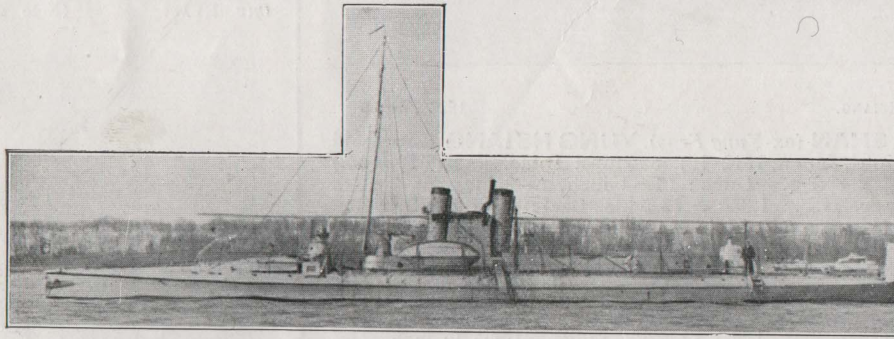


1929 *Official*

2 *Schichau* type: **Chien Kang, Tung An** (1912), 390 tons. Dim.: 198 (*p.p.*), 208 (*o.a.*) × $21\frac{3}{4}$ ×
Armament: 2—3 inch, 4—3 pdr., 2—18 inch tubes. Designed H.P.: 6000 = 32 kts. Coal: 80 tons. Comple

First called *Fu Po*, and *Fei Hung* but names were altered by Yuan Shih Kai.

*Yu Chang*, wrecked 1932.

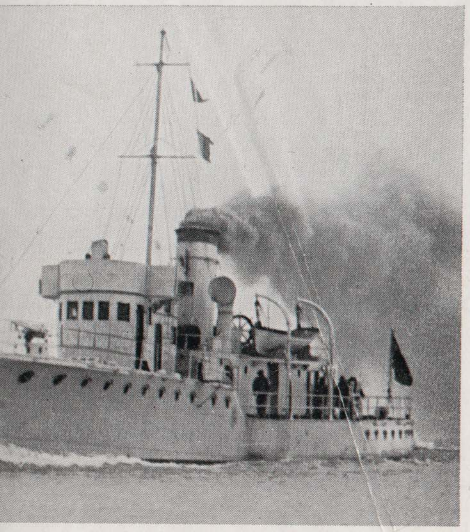


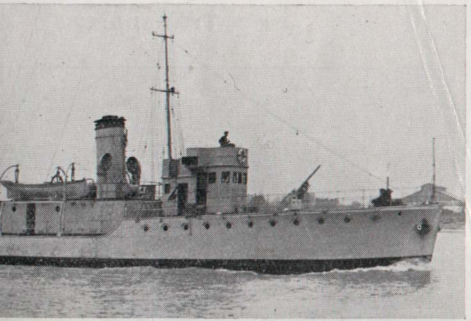
1929 *Official*

4 *Kawasaki–Normand* type: **Hu Peng** or **No. 7, Hu Oah** or **No. 8, Hu Ying** or **No. 9, Hu Chun**
(Kobé, Japan, 1907-8). 96 tons. Dimensions: $135 \times 15\frac{1}{2} \times 7\frac{1}{2}$ feet. Armament: 1—3 pdr., 1—1 pdr.,
tubes (1 bow *above water* and 2 deck). Designed H.P.: 1200 = 23 kts. Coal: 28 tons *normal*. Comple
Some can only do about 13 kts. now. One of these 4 reported disabled, Oct. 3, 1937.

### Patrol Boats.
### New Construction

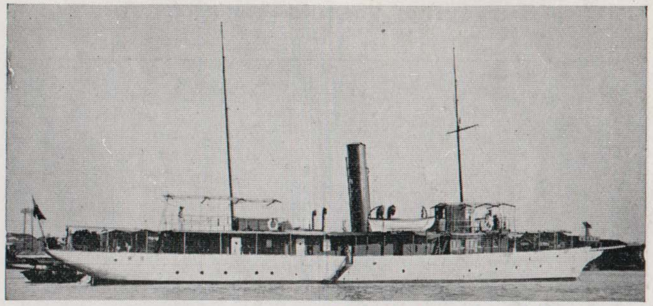
ere reported to have been ordered from W. S.
Ltd., Hongkong, in September, 1937.





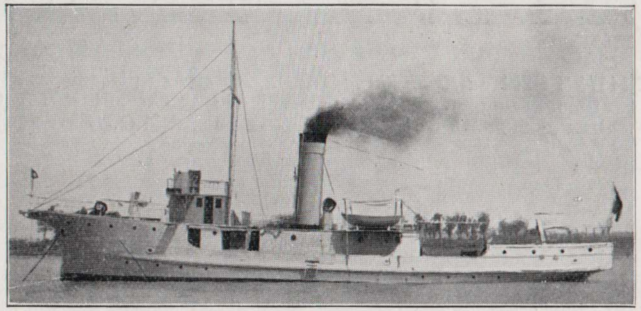
1933 *Photo, Official.*

**ING, KIANG-NING** (both Oct. 10, 1932),
**SUI-NING,** (both Feb. 23, 1933),**WEI-NING,**
, (both Oct. 10, 1933), **CHUNG-NING,**
(both Feb. 17, 1934), **CHENG-NING,**
**NG,** (both June 14, 1934). (All built by
i Navy Yard.) Displacement: 300 tons.
140 (*o.a.*) × 20 × 6 feet. Speed: 10 kts. Coal
ns: **2**—6 pdrs. **3** M.G. Complement: 44.



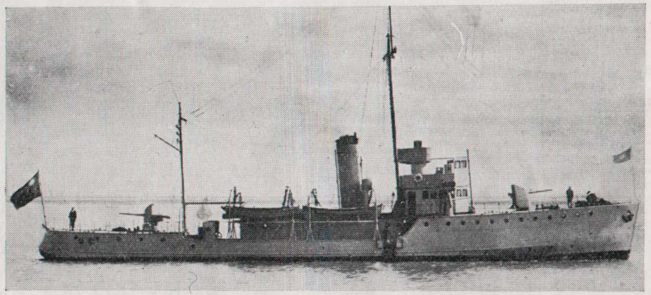
1921 *Photo, Rear-Admiral Ngen Tao.*

**WU FENG** (Tsingtao, 1912). 200 tons. Dimensions: 124 × 20 × 7 feet. H.P: 300 = 10 kts. Guns: **4**—3 pdr. Complement: 46.



1929 *Official Photo.*

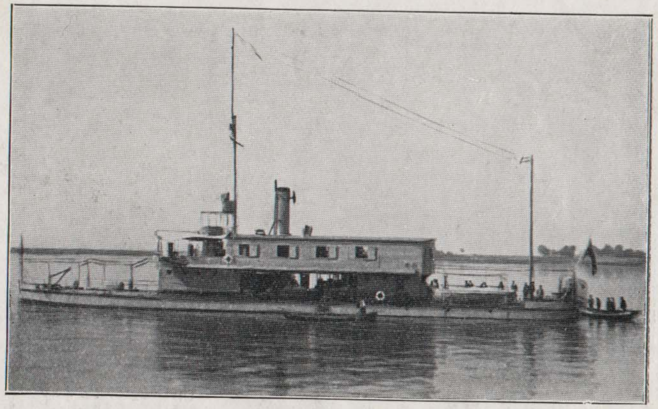
**YI SHENG** (1911). Displacement: 350 tons. Complement: 37. Dimensions: 120½ × 20½ × 11 ft. H.P.: 500 = 10 kts. Guns: **1**—3 inch, **1**—65 mm., **2** M.G.



1930 *Official Photo.*

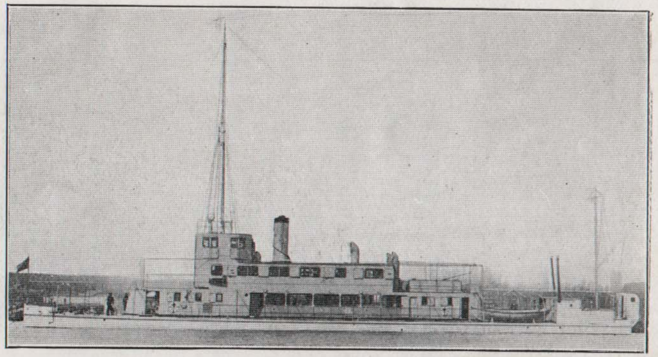
**SHUN SHENG** (1911). Displacement: 380 tons. Complement: 67. Dimensions: 146 × 24½ × 6 feet. H.P.: 500 = 10·7 kts. Guns: **2**—3 inch, **2**—37 mm., **4** M.G.

### River Gunboats.



1929 *Photo.*

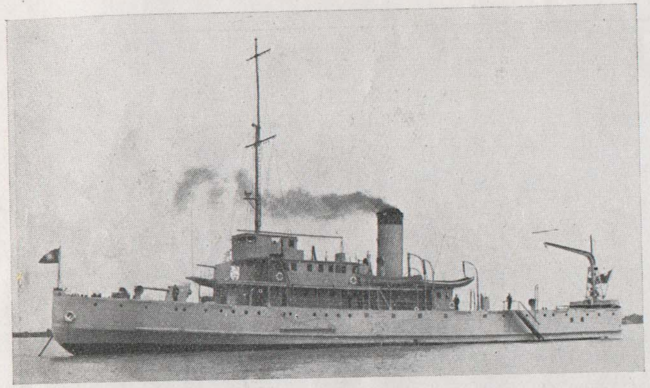
**KIANG KUN** (Vulkan, 1912). Displacement: 140 tons. Dimensions: 146 (*p.p.*) × 26 × 2 feet. H.P.: 500 = 10 kts. Boilers: 2 Schulz. Coal: 30 tons. Guns: **1**—3·4 (22 pdr.) howitzer, **1**—3 inch, **2**—1 pdr., **4** M.G. Complement: 48.



1929 *Official Photo.*

**KIANG HSI** (Krupp, 1911). Displacement: 150 tons. Dimensions: 144 × 25 × 3 feet. H.P.: 450 = 9 kts. Boilers: 2 Schulz. Coal: 35 tons. Guns: **1**—3·4 inch howitzer, **2**—1 pdr., **4** M.G. Complement, 58.

## Seaplane Carrier.



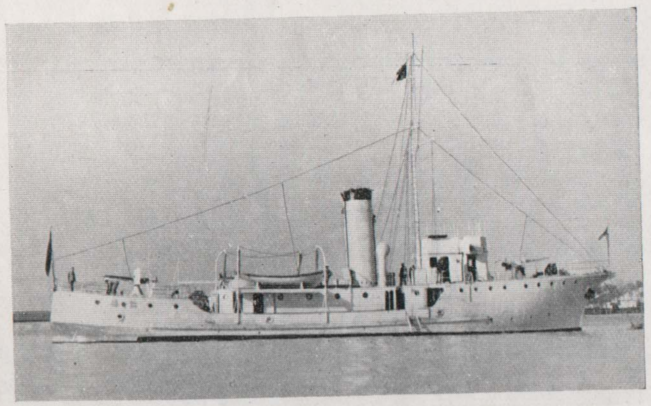
1930 *Official Photo.*

**WEI SHENG** (1922). Displacement, 932 tons. Complement: 93. Dimensions: 205½ × 31 × 8 ft. H.P.: 3300 = 16 kts. Guns: **1**—4·7 inch, **1**—3 inch, **4** M.G.

*Note.*—Originally carried 2 seaplanes. Sistership TEH SHENG sunk in 1937.

## Surveying Vessels.

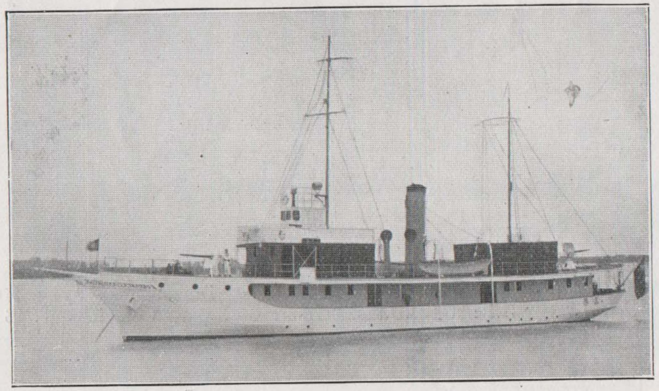
**Note.—CHIAO JIH sunk by Japanese Destroyers in Yangtse, Aug. 26, 1937.**



JEN SHENG. 1931 *Official Photo.*

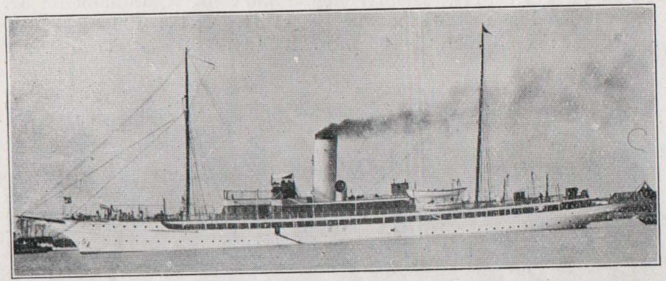
**KUNG SHENG**: (ex-*Chin Tien*) (1931). **JEN SHENG** (1931). Displacement: 300 tons. Complement: 47. Dimensions: 120×21×7·5 feet. H.P.: 500=10 kts. Guns: **1**—3·4 inch, **1**—6 pdr. **2** M.G.

## Surveying Vessels—*continued.*



1929 *Official Photo.*

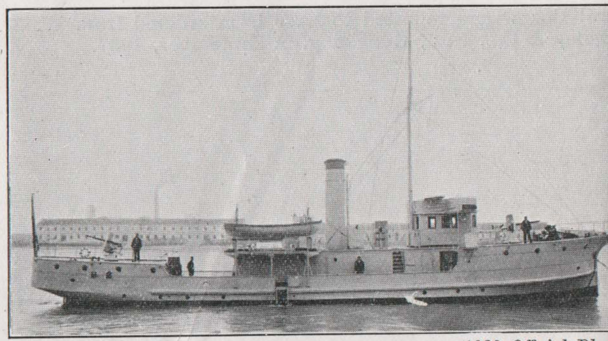
**CHIN TIEN** ex-*Kung Sheng* (1922). *Normal* displacement: 279 tons. Complement, 53. Dimensions: 145 × 20½ × 7 feet. H.P.: 200 = 8·5 kts. Guns: **1**—1 pdr., **2** M.G. (Ex-yacht).



1929 *Official Photo.*

**KAN LU.** (ex-*Atalanta* ex-*Lorena*). 1903 Leith. Displacement: 2132 tons. Dimensions: 300 × 33⅓ × 18 feet. Guns: **1**—3 inch, **2**—6 pdr., **1**—1 pdr. 3 sets Diesels. B.H.P.: 1,500 = 12·75 kts. Oil fuel: 300 tons. Bought 1925 and converted to Diesel propulsion. (Ex-yacht).

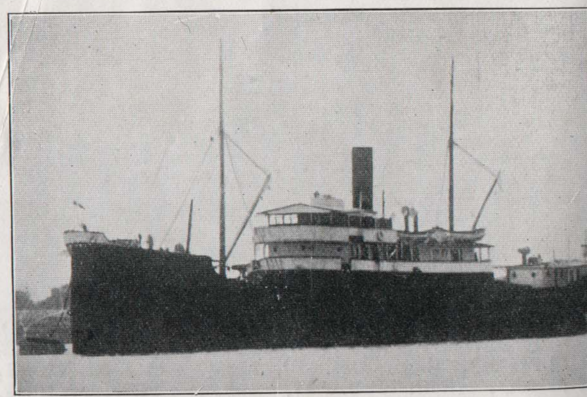
## Surveying Vessels—*continued.*



1929 *Official Pho*

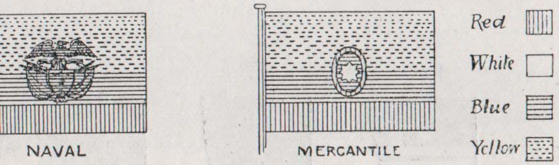
**CHEN SHENG** (1899). Displacement: 275 tons. Comple
42. Dimensions: 120 × 20 × 7 feet. H.P.: 400 = 1
Guns: **1**—3 inch, **1**—6 pdr., **2** M.G.

## Transports.



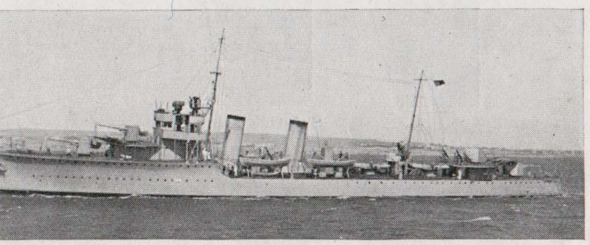
**TING AN, KIEH AN** (1901). Displacement: 2,011
Dimensions: 230 × 33 × 18 feet. H.P.: 918 = 1
Complement: 70.

*ommander-in-Chief* : Rear-Admiral B. O. Bell-Salter (Captain, ., Retired.)



X-2

### Destroyers.

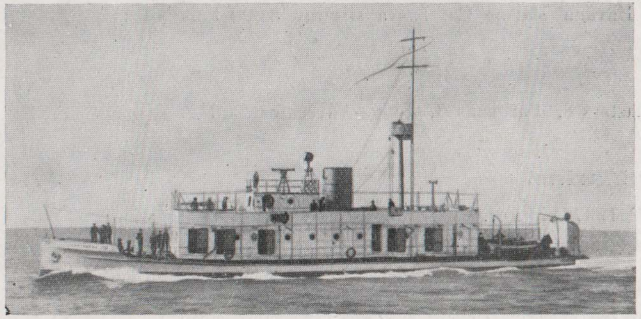


OQUIA. 1933 *Photo, Sen. Henrique Seixas.*

**OQUIA** (ex-*Douro*, June 9, 1932), **CALDAS** (ex-*Tejo*, ov. 18, 1933). Both built at Lisbon under the supervision of essrs. Yarrow & Co., Ltd. for Portugal, from whom they ere purchased in 1934. Displacement : 1,282 tons *standard*, 620 tons *full load*. Complement : 147. Dimensions : 319 *p*.), 322 (*o.a.*) × 31 × 11 feet *max.* draught. Guns : **4**— 7 inch, **3**—40 mm. AA. 2 Depth Charge throwers. Tubes : –21 inch, in quadruple mounts. Machinery : Parsons ared turbines. H.P. : 33,000 = 36 kts. Boilers : 3 Yarrow, orking pressure 400 lbs. Oil fuel : 296 tons. Radius of tion : 5,400 miles at 15 kts.

# COLOMBIA.

## River Gunboats.



CARTAGENA

**CARTAGENA** (March 26, 1930), **SANTA MARTA** (April 16, 1930), **BARRANQUILLA** (May 10, 1930). All built by Yarrow & Co., Ltd. Displacement : 142 tons. Complement : 12. Dimensions : 130 (*p.p.*), 137¾ (*o.a.*) × 23½ × 2¾ feet *maximum* draught. Guns : **1**—3 inch, **4** M.G. Machinery : 2 Gardner semi-Diesel engines. H.P. : 600 = 15·5 kts. 2 screws, working in tunnels. Fuel : 24 tons.

*Notes.*—These three vessels crossed the Atlantic under their own power without mishap, making the voyage from the Clyde to the Magdalena in 24 days with only one stop (St. Vincent). They represent an extraordinarily efficient type of shallow draft gunboat, incorporating many improvements on previous types. The designed speed has been exceeded on trial and is very high for this type of craft. Hull is of galvanised steel, and machinery spaces, cabins and magazines are of bullet proof plating. Ventilation and refrigerating plant designed to secure excellent habitability.

**PRESIDENTE MOSQUERA.** Sternwheel Gunboat. Displacement : 200 tons. Dimensions : 150 × 35 × 3½ feet. Guns : **2**—37 mm.

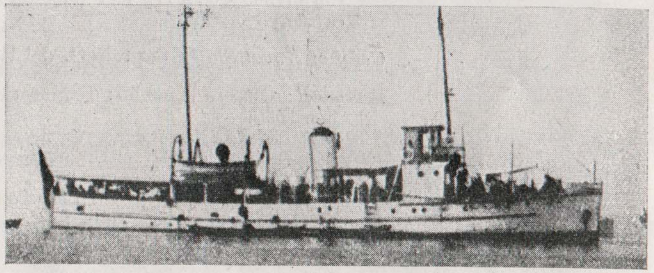
## Training Ship.

**CUCUTA** (ex-*Commercial Traveller*, ex-*Crofton Hall*). (Hamilton, Glasgow, 1913). Displacement : 5,378 tons *gross*. Dimensions : 405 × 52 × 26⅓ feet. Machinery : Triple expansion. I.H.P. : 3,000 = 10 kts. 4 boilers. Oil fuel.

## Minesweeper.

**BOGOTA** (ex-Norwegian s.s. *Tonsberg I*, ex-*Helgoland*, ex-German minesweeper *M* 140). Built by Joh. C. Tecklenborg A.G., 1919, and purchased in 1933. Displacement : 525 tons. Dimensions : 184 (*w.l.*), 192 (*o.a.*) × 24¼ × 7¼ feet. Guns : **1**—3·5 inch, **2**—3 inch, **2** M.G. Machinery : 2 sets triple expansion. H.P. : 1,850 = 16 kts. Boilers : 2 Schulz. 2 screws. Coal : 160 tons.

## Coastguard Patrol Vessels.



PICHINCHA. 1934 *Photo.*

**JUNIN** (ex-*Boyaca*) (July 8, 1925), **CARABOBO** (August 8, 1925), **PICHINCHA** (Sept. 5, 1925). All built by Soc. Anon. des Chantiers et Ateliers de St. Nazaire (Penhoët), at Rouen. 120 tons. Dimensions : 100 × 20 × 8½ feet. Guns : **1**—3 inch, **2** M.G. Triple expansion engines and oil-burning water-tube boilers by Messrs. Thornycroft. Speed : 13 kts.

**A, B, C, D.** (ex-*L.M.* 15, 17, 19, 20). (1918.) Bought in Germany, 1933. Displacement : 12 tons. Complement, 8. Dimensions : 57½ × 8¾ × 2¾ feet. **2** M.G. Machinery : Mercedes-Benz motors. B.H.P. 900 = 28 kts.

***Guarda Costas 1, 2, 3, 4*** (Yarrow, 1913). 20 tons. Dimensions: 80 × 12½ × 3½ feet. Guns : **1**—1 pdr. H.P. : 160 = 12 kts. Fuel : 1800 galls. petrol = 2400 miles at 10 kts.

## Transports.

**BOYACA** (ex-*Bridgetown*, ex-*Lake Fillmore*). (Toledo Shipbuilding Co., 1920). Displacement : 3,000 tons, 2,559 tons *gross*. Triple expansion engines and oil-fired boilers.

**MOSQUERA** (ex-*Royal Highlander*, ex-*Royal Scot*). (Caledon Shipbuilding Co., Ltd., Dundee, 1910). Purchased 1933. Displacement : 3,500 tons, 1,726 tons *gross*. Guns : **2**—3·5 inch. Triple expansion engines.

**CORDOBA** (ex-*Dinard*, ex-*Grille*). (Nordseewerke A.G., Emden, 1919.) Displacement : 800 tons, 437 tons *gross*.

# CUBA.

A Government dockyard is projected in Havana Bay, near the Tiscornia. To have a 4,000 ton Floating Dock. Naval Academy at Mariel to be transferred to vicinity of Dockyard.

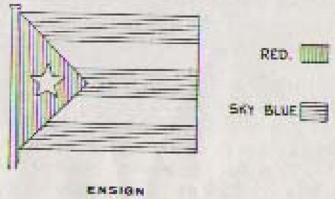
*Private Docks:* At Havana, private floating dock (U.S. and Cuban Allied Works Engineering Corp.) 360 × 66 × 17½ feet (5,600 tons); also Havana Marine Co. has a slipway 3,000 tons capacity.

*Chief of Naval Staff:* Captain G. del Real.

*Personnel:* Officers, Line 65; Engineers 49, Paymasters 8, Surgeons 8, Judge-Advocates 2 = 132. Men 1050.

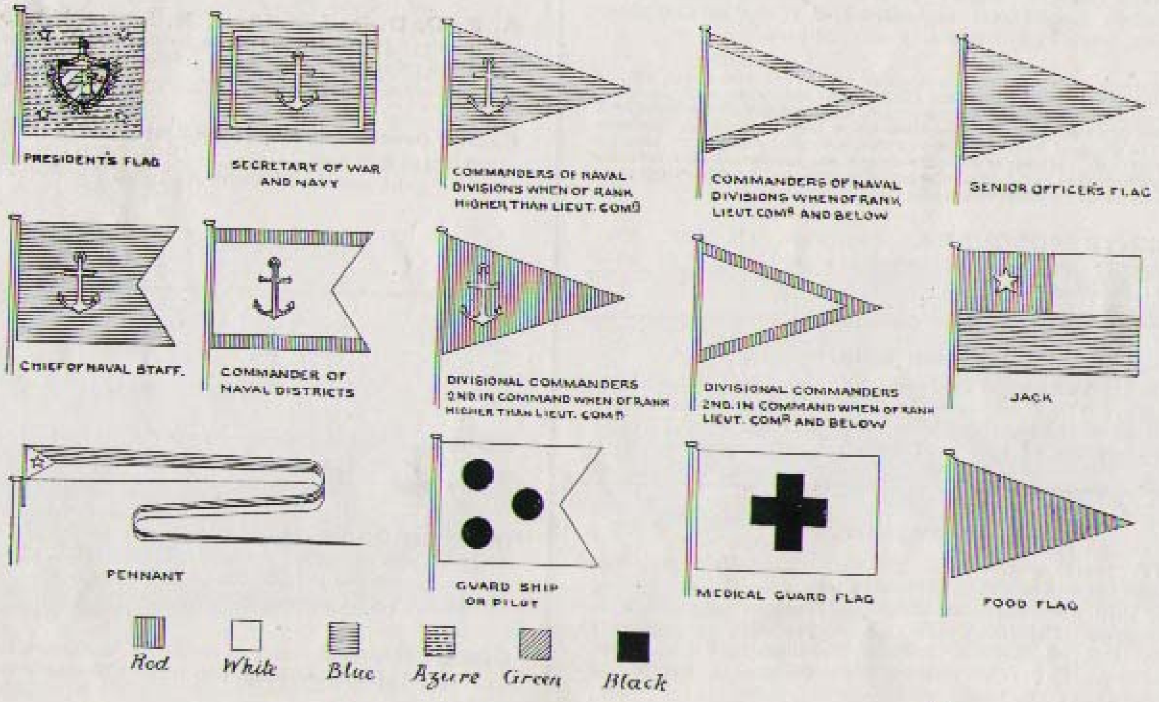
## Mercantile Marine.

"Lloyd's Register," 1937 Figures.
43 vessels of 33,814 gross tonnage.


RED.
SKY BLUE
ENSIGN

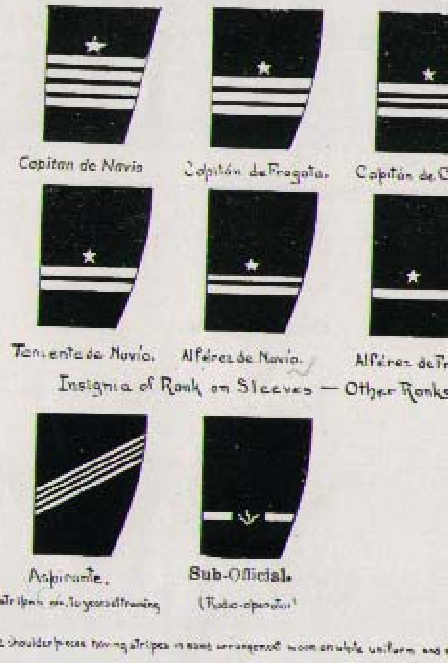
## Flags.

(To distinguish jack from Chilean ensign, note that the positions of the colours are transposed.)


PRESIDENT'S FLAG
SECRETARY OF WAR AND NAVY
COMMANDERS OF NAVAL DIVISIONS WHEN OF RANK HIGHER THAN LIEUT. COMR
COMMANDERS OF NAVAL DIVISIONS WHEN OF RANK LIEUT. COMR AND BELOW
SENIOR OFFICER'S FLAG
CHIEF OF NAVAL STAFF.
COMMANDER OF NAVAL DISTRICTS
DIVISIONAL COMMANDERS 2ND. IN COMMAND WHEN OF RANK HIGHER THAN LIEUT. COMR
DIVISIONAL COMMANDERS 2ND. IN COMMAND WHEN OF RANK LIEUT. COMR AND BELOW
JACK
PENNANT
GUARD SHIP OR PILOT
MEDICAL GUARD FLAG
FOOD FLAG
Red
White
Blue
Azure
Green
Black

## Uniforms

### Insignia of Rank on Sleeves—Exec


Capitan de Navio
Capitán de Fragata.
Capitán de C
Teniente de Navio.
Alférez de Navio.
Alférez de F
Insignia of Rank on Sleeves — Other Ranks
Aspirante.
Sub-Oficial.
(Radio-operator)

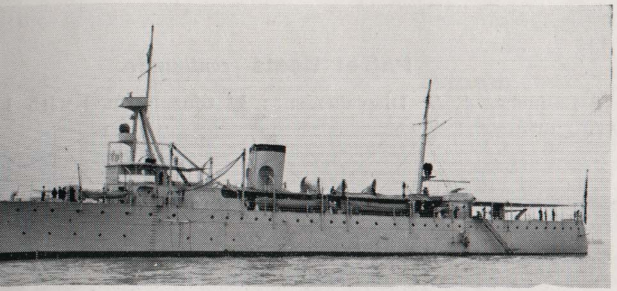
## New Construction.

The following programme has been recommended an expenditure of 7,220,000 pesos, spread over a pe years :—

1 cruiser of 4,500—5,000 tons.
1 „ „ 2,500 tons.
8 gunboats of 900 tons.
8 „ „ 200 tons.

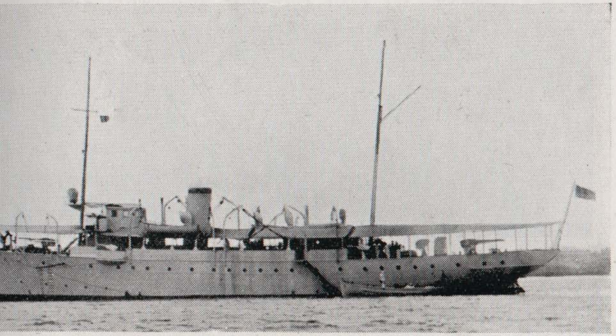
## Escort Vessels (rated as Cruisers).

(Both reconstructed, 1936–7)



1937, *Fighting Ships*

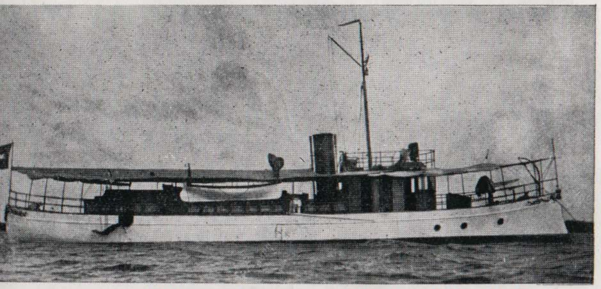
**A** (Cramp, Philadelphia, 10th August, 1911). 2055 tons. Dimen-
ons: (*p.p.*) 260×39×14 feet. Armament: **2**—4 inch, **6**—3 inch,
—6 pdr., **4**—3 pdr., **2** machine. H.P.: 6000=18 kts. Babcock
oilers. Coal: 250 tons.



(*Training Ship.*) 1937, *W. H. Davis, Esq.*

**RIA** (Cramp, Philadelphia, 10th August, 1911). 1200 tons.
imensions: 200 (*p.p.*) × 36 × 13 feet. Guns: **2**—3 inch
Bethlehem), **4**—6 pdr., **4**—3 pdr., I.H.P.: 4000=16 kts.
abcock boilers. Coal: 150 tons.

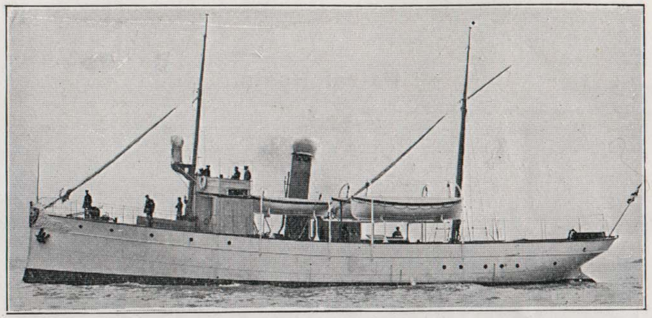
## Gunboats.



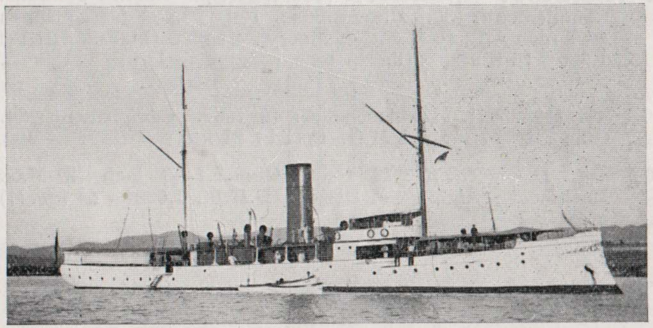
1921 *Photo, by courtesy of Captain J. Morales Coello.*

**ANA** (1912) and **PINAR DEL RIO** (1912). Both wooden
essels of 80 tons, built at Havana. Dimensions: 100 × 18 × 6
eet. Guns: **1**—1 pdr. I.H.P.: 200= 12 kts. 1 screw. Coal:
0 tons.

## Gunboats—*continued.*



**DIEZ DE OCTUBRE** (J. Samuel White, Cowes, 1911), **VEINTE Y CUATRO DE FEBRERO** (J. Samuel White, Cowes, 1911). 218 tons. Dimensions: 110 × 20 × 8 feet. Guns: **3**—3 pdr. Speed: 12 kts. Coal: 50 tons.



1921 *Photo, by courtesy of Captain J. Morales Coello.*

**BAIRE** (Klawitter Yd., Danzig, 1906). 500 tons. Dimensions: 196 × 23 × 9 feet. Guns: **4**—3 inch, **2**—3 pdr. H.P.: 1200 = 14 kts. Babcock boilers. Coal: 120 tons. (Used as Presidential Yacht.)

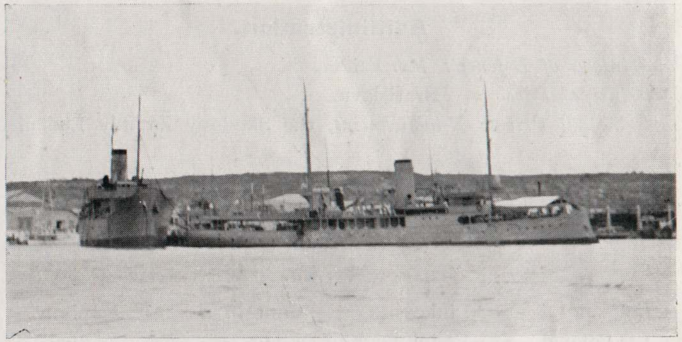
## Coast Guard Patrol Vessels.

**CAPITAN QUEVEDO** (Havana, 1932). 115 tons. Guns: **1**—3 inch AA., **2**—1 pdr. Diesel engines. Speed: 12 kts.

**GENERAL ZAGAS.** 500 tons. Guns: **2**—1 pdr.

**MATANZAS** (1912), **VILLAS** (1912). Details as *Habana* and *Pinar del Rio*; differ in appearance.

**ENRIQUE VILLUENDAS** (Chester, U.S.A., 1899). 178 tons. 132×20×9 feet. Guns: **2**—3 pdr. I.H.P.: 600=16 kts. Coal: 55 tons.

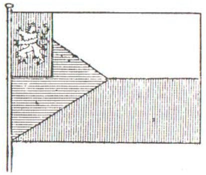


1937, *W. H. Davis, Esq.*

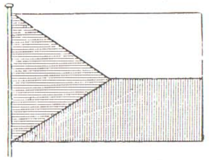
**YARA** (Middlesbrough, 1895). 449 tons. 155×26×13 feet. Guns: **2**—6 pdr., **2**—3 pdr. I.H.P.: 600=12 kts. Coal: 150 tons.

**VEINTE DE MAYO** (Glasgow, 1895). 203 tons. 141×18·5×10·5 feet. Guns: **2**—3 pdr., **2**—1 pdr. I.H.P.: 500=12 kts. Coal: 50 tons.

# CZECHOSLOVAKIA.



Warships



National.

## Administration.

*Minister of Defence :* Mr. Bradáč

*Principal Base* = Bratislava.

*Principal Private Establishment,* the Skodovy Závody Loděnice

## Ranks.

| | | | | | |
|---|---|---|---|---|---|
| Colonel | = | Plukovník | Captain | = | Kapitán |
| Lt.-Colonel | = | Podplukovník | Lieut. | = | Nadporučík |
| Major | = | Major | Sub.-Lt. | = | Porucik |
| Sen. Captain | = | Štabni Kapitán | | | |

Officers Cap = same as Army

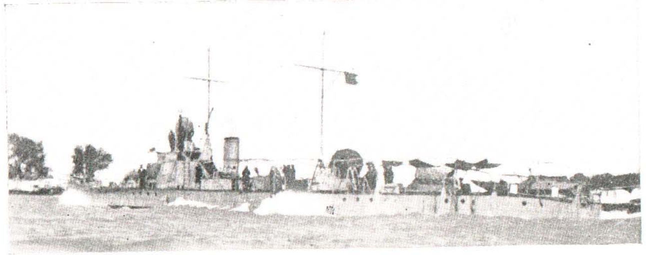
Crew = Naval cap

Colour of ships = light grey

## Minelayers.

16 vessels. Displacement : 240 tons. Complement : 117. Guns : **2**—3·5 inch howitzers, **2**—3 inch, **2**—3 inch AA., **4**—47 mm. AA., **4** M.G. Machinery : Diesels. B.H.P. : 2,400 = 15 kts.

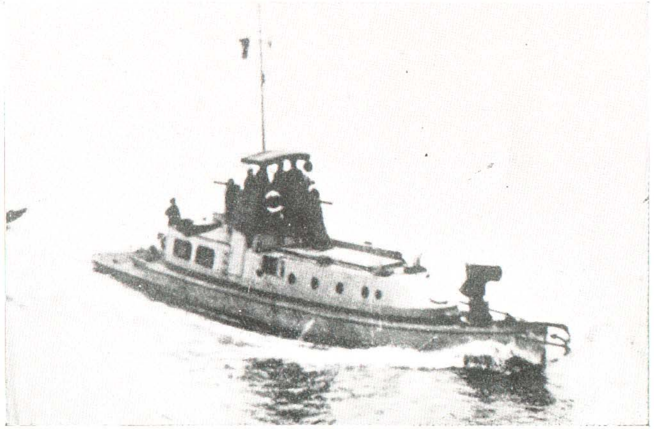
## Patrol Boats.



**PRESIDENT MASARYK** (1930). Displacement : 200 tons. Complement : 50. Dimensions : 150 × 20 × ·5 feet. Guns : **4**—3 inch AA., **10** M.G. Machinery : 2 sets turbines. S.H.P.: 1,600 = 16·8 kts. Oil : 45 tons.

6 boats (1936–37). Displacement : 48 tons. Complement : 24. Guns : **1**—47 mm., **2** M.G. Speed : 21 kts.

9 boats. Displacement : 21 tons. Guns : **1**—3 inch, **2** M.G. Machinery : High speed Diesels. B.H.P.: 1,600 = 43 kts. (?)



2 Launches **1, 2.** Displacement : 17 tons. Complement : 23. Length : 80·6 feet. Guns : **2**—3 inch, **2** M.G. H.P.: 240 = 20 kts.

## Patrol Boats—*continued.*

2 Launches **4, 5.** Displacement : 14 tons. Armed w
machine guns.

## Guard Boats.

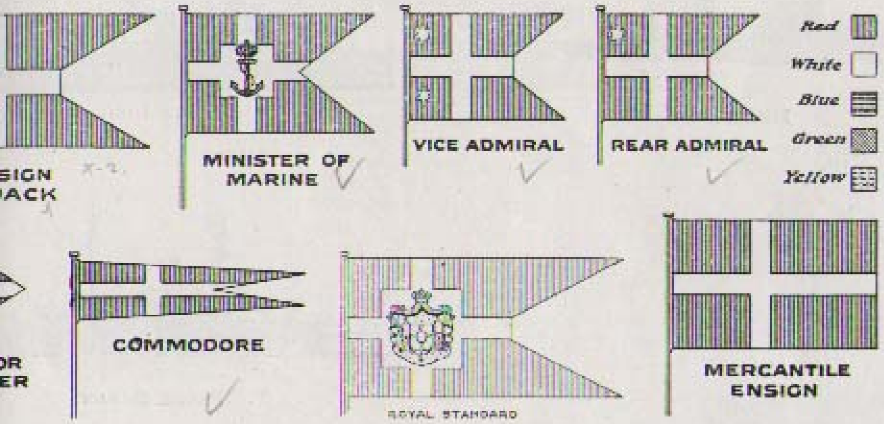
8 Launches **11, 12, 13, 14, 15, 18, 19, 20.** Displaceme
Complement : 11. H.P.: 45 = 16 kts. Guns : 2 M

## Motor Tugs.

10, Nos. **21** to **30.** Displacement : 10/14 tons. H.P.
**1** M.G.

# DENMARK.

## Flags.



—Division flag is pennant, otherwise as commodore.

## Principal Naval Guns. (Officially revised, 1933.)

| Bore: | | Length in Calibres. | Make and Date of Model. | | Weight of Gun. | Weight of Projectile. | Muzzle Velocity. | Mounted in: |
|---|---|---|---|---|---|---|---|---|
| ins. | cm. | | | | metric tons. | lbs. | ft.-secs. | |
| 9·4 | *24* | 43 | Bofors | M. '06 | 21·5 | 352 | 2690 | *P. Skram* |
| 5·9 | *15* | 45 | Bofors | M. '20 | 6·1 | 101 | 2710 | *Niels Iuel* |
| 5·9 | *15* | 50 | Bofors | M. '06 | 7·5 | 112 | 2723 | *P. Skram* |
| 4·7 | *12* | 40 | Krupp | | 2·4 | 44 | 2526 | *Ingolf* |
| 3·5 | *8·8* | 50 | Bofors | M. '32 | | | | *Glenten class* |
| 3·5 | *8·8* | 40 | Bofors | M. '28 | | | | *Hvidbjörnen* |

**Torpedoes:**—45 c/m. heater type in all vessels.

*Personnel:* About 4000, all ranks

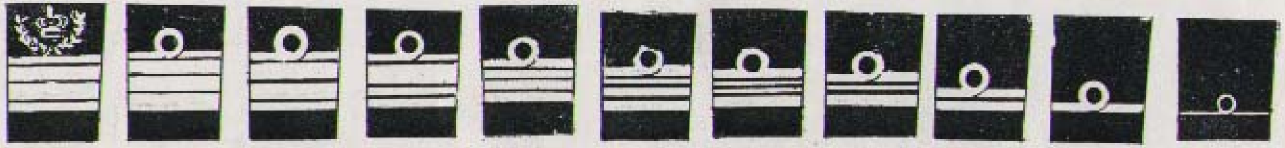
*Oversea Possessions:* Greenland, Faröe Islands.

*Minister of Defence:* Alsing Andersen.

*C. in C. and Director-General, Ministry of Marine:*
Vice-Admiral H. Rechnitzer.

Navy Estimates, 1937-38. Kr. 15,500,000.

## Insignia of Rank on Sleeves.



| Marine-minister. | Admiral. | Vice-Admiral. | Kontre-Admiral. | Kommandör. | Kommandör-kaptajn. | Orlogs-kaptajn. | Kaptajn-löjtnant. | Sölöjtnant, 1' Grad. | Sölöjtnant 2' Grad. | Kadet Ældste Klasse |
|---|---|---|---|---|---|---|---|---|---|---|
| *Minister of Marine (if a Naval Officer).* | *Admiral.* | *Vice-Admiral.* | *Rear-Admiral.* | *Commodore.* | *Captain.* | *Commander, (being replaced by fresh insignia).* | *Lieutenant-Commander.* | *Lieutenant.* | *Sub-Lieutenant.* | *Midshipman.* |

ritish } or } S.A. }

## Mercantile Marine.

From "Lloyd's Register" 1937.

693 Vessels of 1,117,987 tons gross.

## Future Construction (1937).

ving programme of naval construction has been approved, to be spread over a period years:

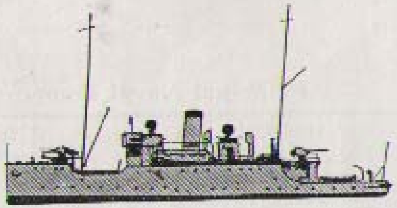
- 6 Torpedo Boats
- 4 Submarines
- 3 Minesweepers
- 1 Minelayer
- 1 Patrol Vessel
- 1 Surveying Vessel

## Note to pages following this.

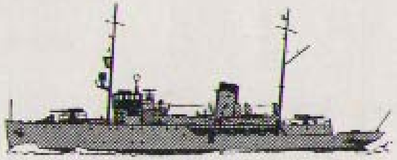
All displacements are "Standard". Where measurement of length is not stated, it can be taken as between perpendiculars (*p.p.*). All draughts *max. load aft*, unless otherwise stated.

ML 2/44

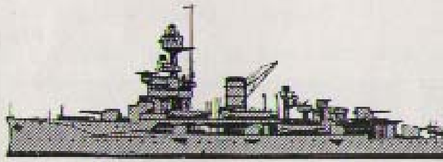
33 48
2 —
17 6
– 2
– 1
12 3
— 4
6 3
– 20
1 3
3 53
6 11



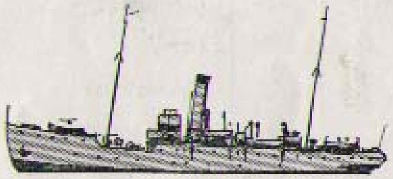
Henrik Gerner.



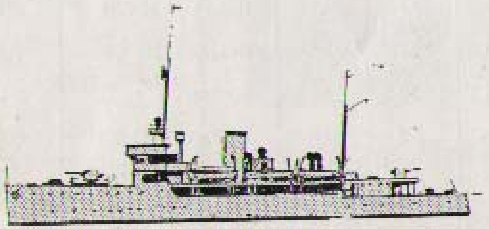
Hejmdal.



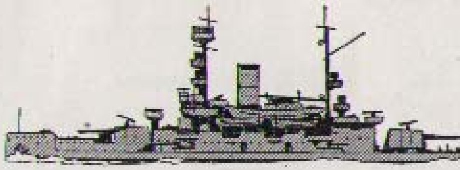
Niels Iuel.



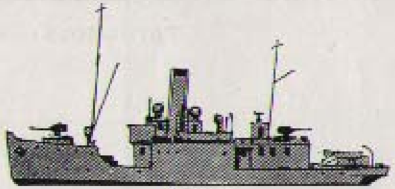
Islands Falk.



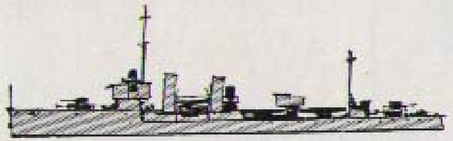
Hvidbjörnen, Ingolf.
(Differ slightly, latter having different bridge and a small poop.)



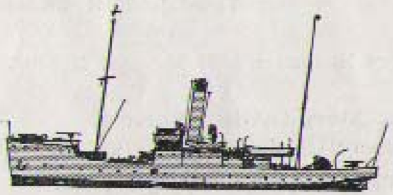
Peder Skram.



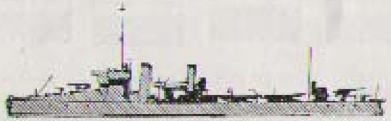
Lossen.



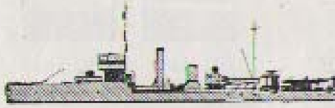
"T" *Class* T.b.



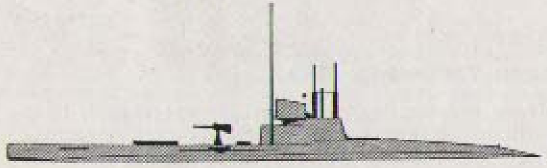
Beskytteren.



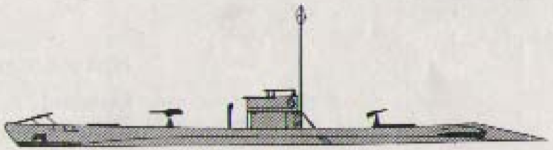
"P" *Class* T.b.



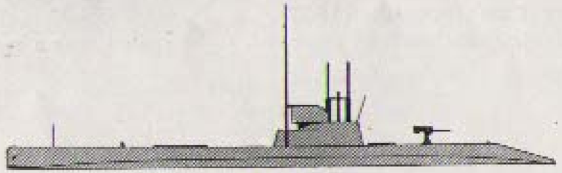
"R" & "S" *Classes* T.b.



"B" *class.*



"D" *class.*



"C" *class.*

(*Note.*—None of these subm
has masts now.)

(Officially classed as *Artilleriskib*.)

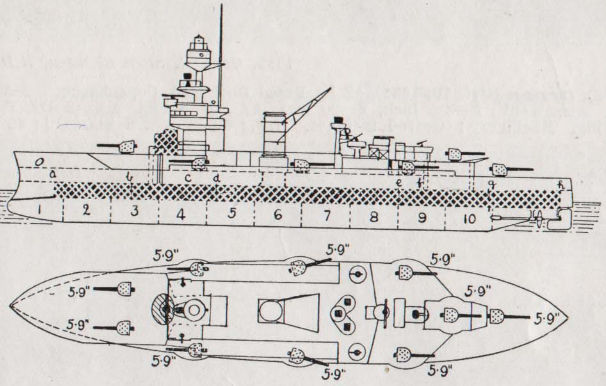
+ **NIELS IUEL** (July, 1918). 1.4.44
Built at Royal Dockyard, Copenhagen.
Displacement, 3,800 tons. Complement, 365.

Length { (*p.p.*), 285½ feet. (*o.a.*), 295¼ feet. Beam, 53½ feet. Draught { *mean* 15¾ feet. *full load*, aft., 16½ feet.

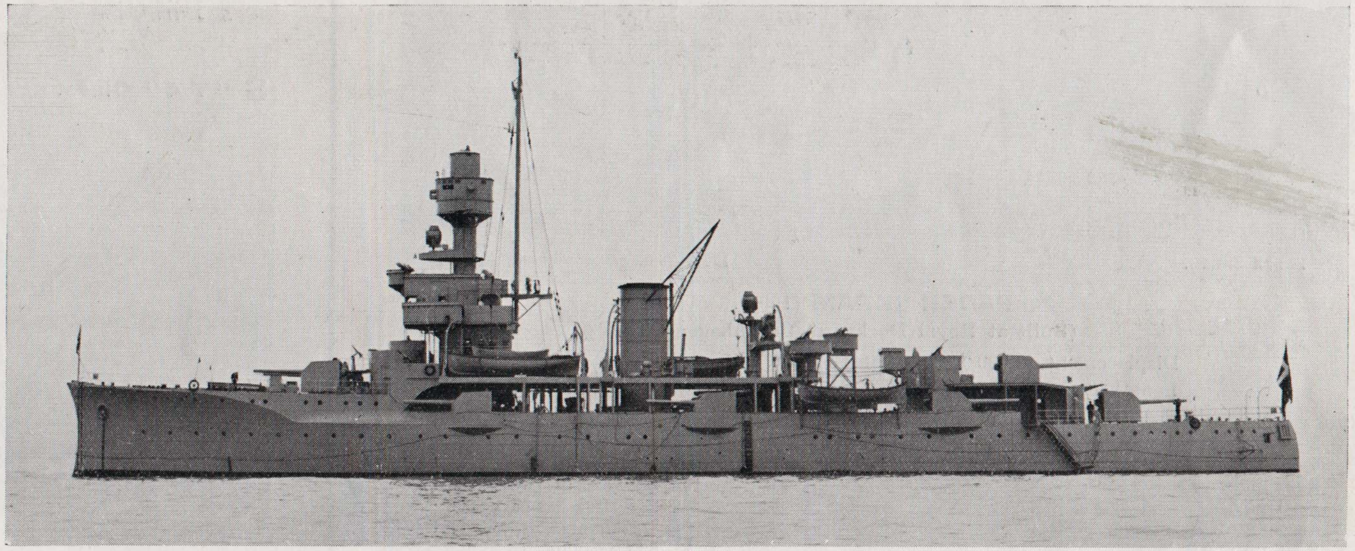
Bofors):
5·9 inch, 45 cal.
6 pdr.
20 mm. AA.
8 mm. M.G.
o tubes (17·7 inch heater):
*ubmerged* (broadside).

Armour (Krupp):
7¾″, 7½″, 7″ Side (amidships b - g) ▨
6″ Side (forward & aft. a - b and g - h) ▨
6½″ Bulkheads (forward and aft.)
3″ Uptake to funnel ..
6¾″ Conning Tower ...... ▨
4″ Tubes to C.T. .........
1¾″ Gun shields (½″ at sides) ....................
2¼″ Deck....................
2½″ Deck (forward) ......

Machinery: Triple expansion. 2 screws. Boilers: 4 Yarrow (2 and 2 oil fired). Designed H.P. 5500 = 16 kts. Fuel: 250 tons + 240 tons oil. Endurance: about 5000 miles at 10 kts. Laid
Feb., 1914; first commissioned 23rd May, 1923.



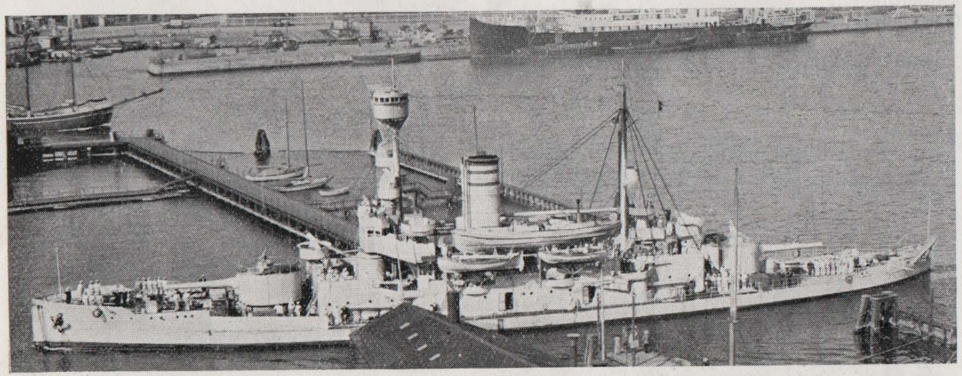
—Modernised, 1935–36, and fitted with up-to-date fire control arrangements at a cost of about £150,000.



1937, *Fighting Ships.*

1936 *Official*

1936 *Official.*



PEDER SKRAM. 1935, *Com. Steen Steensen, R.D.N.*

## PEDER SKRAM (1908).

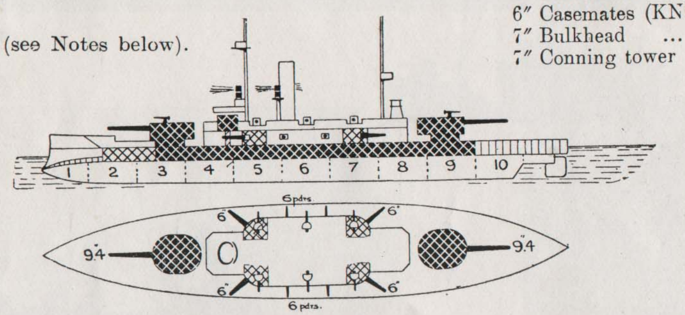
(Built at Royal Dockyard, Copenhagen.)

Displacement, 3,500 tons. Complement, 275.
Length (*p.p.*) 275 feet. Beam, 51 feet. Draught, 16½ feet.

Guns:
- 2—9·4 inch, 43 cal.
- 4—5·9 inch, 50 cal.
- 8—3 inch.
- 2—1 pdr.
- 4—20 mm. AA.
- 2—8 mm. AA.

Torpedo Tubes: 4 (see Notes below).

Armour (*see Notes*):
- 7″ Side (amidships) ... ▩
- 6″ Side (fore & aft) ... ▥
- 2½″ Deck (forward) ...
- 2¼″ Deck flat on belt.
- 7″ Turrets ... ... ... ▩
- 6″ Casemates (KNC)... ▩
- 7″ Bulkhead ... ...
- 7″ Conning tower ... ▩



Machinery: 2 sets, triple expansion, 2 screws. 6 Thornycroft boilers. Coal (*maximum*): 265 tons. I.H.P. 5,400 = 16 kts.

*Gunnery Notes.*—Guns are Bofors 1906 models.

*Armour Notes.*—Krupp armour. Belt is 7 feet deep, 3½ feet above and 3½ feet below water-line. It stops 20 feet from bow. Armoured deck is 3 feet above water-line.

*Torpedo Notes.*—All tubes 18 inch and submerged: 1 bow, 1 stern, 2 broadside.

*Engineering Notes.*—Trial: 5,400=16 kts. Endurance is about 2,000 miles at 10 kts., and 1,050 miles at 14¾ kts.

*Note.*—Sister ship, *Olfert Fischer* (built 1903) was removed from the effective list in 1936, and used as a target for gunnery practice and aircraft bombing.

## 20 Torpedo Boats. (*Torpedobaade*)

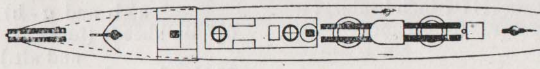
***Note.***—Danish Torpedo Boats are numbered as follows:—

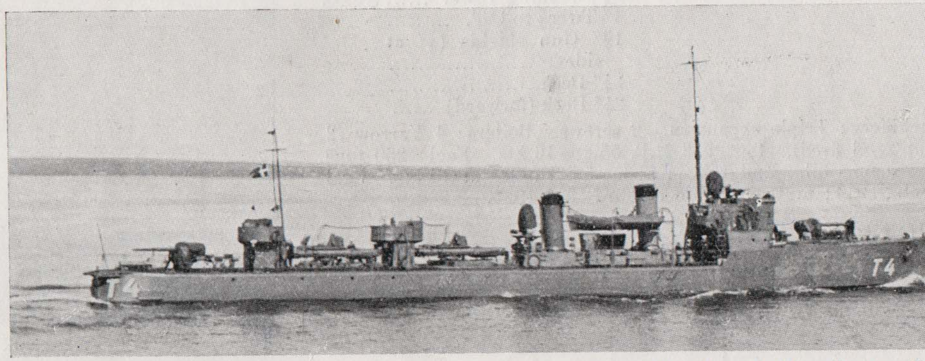
| No. | Name | No. | Name | No. | Name. |
|---|---|---|---|---|---|
| R 5 | *Sælen* | S 4 | *Söhunden* | T 5 | *Högen* |
| R 4 | *Havkatten* | S 3 | *Sölöven* | T 4 | *Glenten* |
| R 3 | *Nordkaperen* | S 2 | *Stören* | T 3 | *Laxen* |
| R 2 | *Makrelen* | S 1 | *Springeren* | T 2 | *Hvalen* |
| S 6 | *Narhvalen* | P 1 | *Hvalrossen* | T 1 | *Dragen* |
| S 5 | *Harhesten* | T 6 | *Örnen* | | |

*Note:*—

3 Torpedo Boats a
be built during 19

## 3 "T 4" Class.



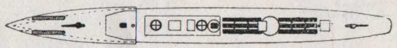


GLENTEN. 1935, *Com. R. Steen Steensen, R*

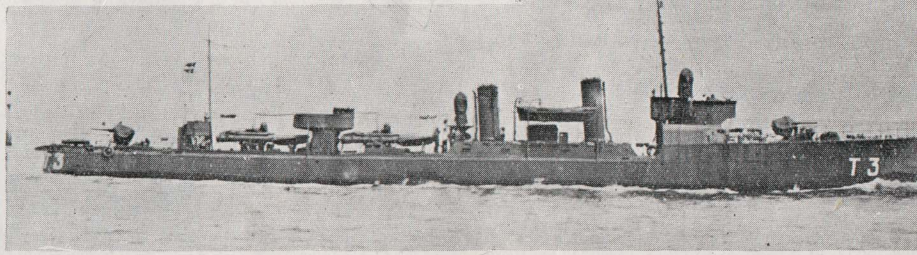
3 boats: ***Glenten, Hogen*** (both 1933), ***Örnen*** (Oct. 19, 1934), all by Royal Dockyard, Copenhagen. 2
Dimensions: 198¾ × 19½ × 7¾ feet. Armament: 2—3·5 inch, 2—20 mm. AA., 2—8 mm. AA., 2 D.C.
18 inch Tubes. Fitted for minelaying. Machinery: Geared turbines. H.P.: 6,000 = 27·5 kts. Oil: 4
Complement: 59.

2) – [illegible] 1) – [illegible]
3)

## 3 "T 1" Class.



(Bow tubes are actually arranged as in T4.)



LAXEN. 1932 *Photo, Com. R. Steen Steensen, R.*

3 boats: ***Dragen*** (Dec., 1929), ***Hvalen, Laxen*** (both 1930), all by Royal Dockyard, Copenhagen. 2
Dimensions: 198¾ × 19½ × 7¾ feet. Armament: 2—3 inch, 2—20 mm. AA., 2—8 mm. AA., 8—18 inc
(2 in bow and 2 triples). Machinery: Geared turbines. H.P. 6,000 = 27·5 kts. Oil: 40 tons. Complem

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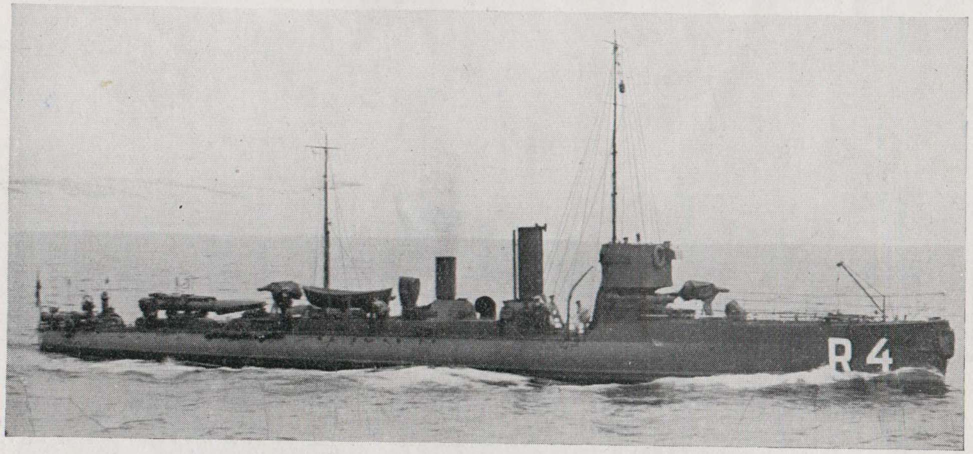
3) [illegible]

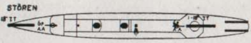
## Torpedo Boats—*continued.*

### 4 "R" Class.

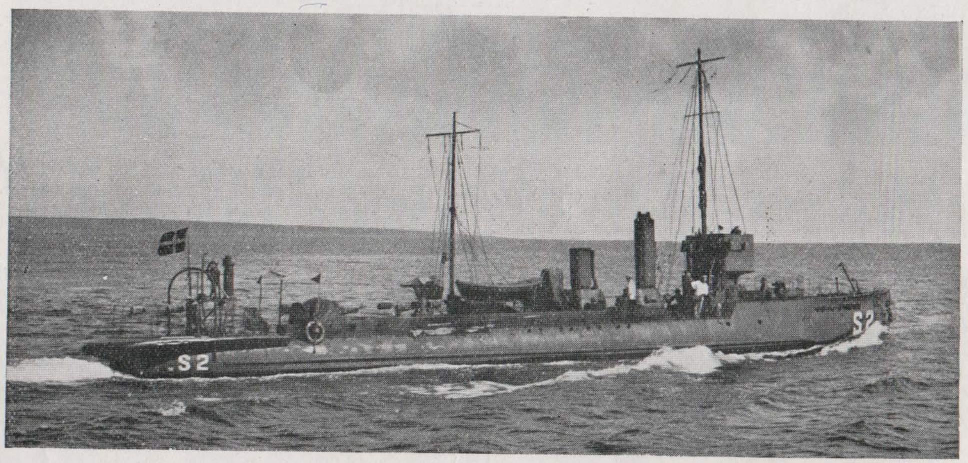


HAVKATTEN. 1934, *Com. R. S. Steensen, R.D.N.* (*added* 1935)

4 *Improved Ormen* class: **Havkatten R4, Saelen R5,** (both launched 1919), **Makrelen R2, Nordkaperen R3,** (both launched 1918). All by Royal Dockyard, Copenhagen. Displacement, 110 tons. Complement, 26. Dimensions: 126⅓(*o.a*)×14×8¾ feet *max.* draught. Armament: **2**—6 pdr., 30 cal. (anti-aircraft). **2**—18 inch tubes (one bow, one deck, both *above water*), and two depth charge throwers. H.P. 2000 = 24·3 kts. Coal, 15 tons.



### 6 "S" Class.

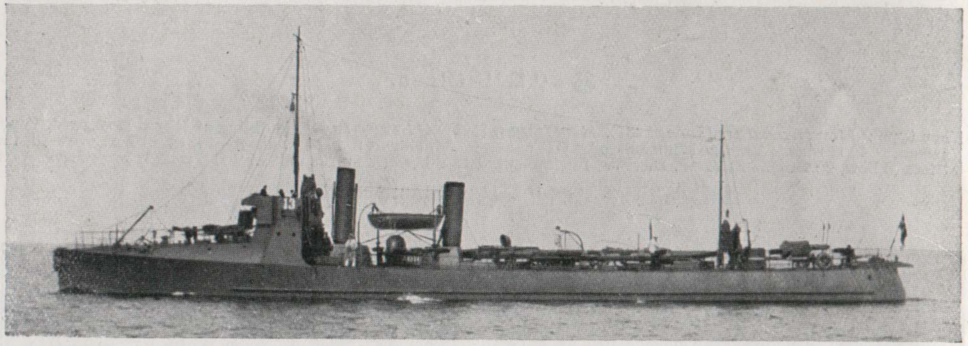


STÖREN 1930 *Photo, Com. R. S. Steensen, R.D.N.*

6 *Improved Ormen* class (similar to above): **Springeren (S1), Stören (S2), Sölöven (S3), Söhunden (S4), Havhesten (S5), Narhvalen (S6).** (All by Royal Dockyard, Copenhagen, launched 1916–17). Guns: 2—6 pdr. AA., 1—18 inch tube in bow. After tube replaced by mine-sweeping gear. Details as "R" class above.

### 1 "P" Class.

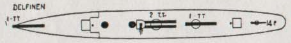
(Serves as Gunnery School Tender; sometimes employed on fishery protection duties.)



HVALROSSEN. 1922 *Photo, Com. R. S. Steensen, R.D.N.*

1 *Hvalrossen* type: **Hvalrossen, P1** (1913), built at Royal Copenhagen Dockyard. 169 tons. Dimensions: 148¼×17×7 feet. Armament: 1—3 inch (aft)., 1—8 mm. AA. 4—18 inch tubes. H.P. 3500 = 26 kts. Coal 29 tons. Compl. 33.

*Note.*—In sketch annexed, positions of double and single deck tubes should be transposed.



~~Bx~~ - самозатоп 29.8.43

один из „S" S-5?

x Havörnen 110 т

Hvitfeldt (47) 710т 35уз 2-88 2-40 4-20 6 533 60 мин
Willemoes [ 31уз 2-105 4-40 4-20 8-533 по данным US Na

передан US немецк T-19 800т 33 уз 1-102 1-40 237 12-20 6 533
куплен у US —"— T-4

строятся Bille 329т
Buhl 29 уз
Hammer 2-88
Holm 2-20
Krabbe 2 мин
Krieger 6-450

## 8 + 3 *(building)* Submarines *(Undervandsbaade).*

в строю нет

*Note.*—Danish Submarines are painted green, and numbered thus for identification purposes: *Ran* B9, *Triton* B10, *Galathea* B12, *Rota* C1, *Bellona* C2, *Flora* C3, *Daphne* D1, *Dryaden* D2; *Havmanden* E1, *Havfruen* E2, *Havkalven* E 3.

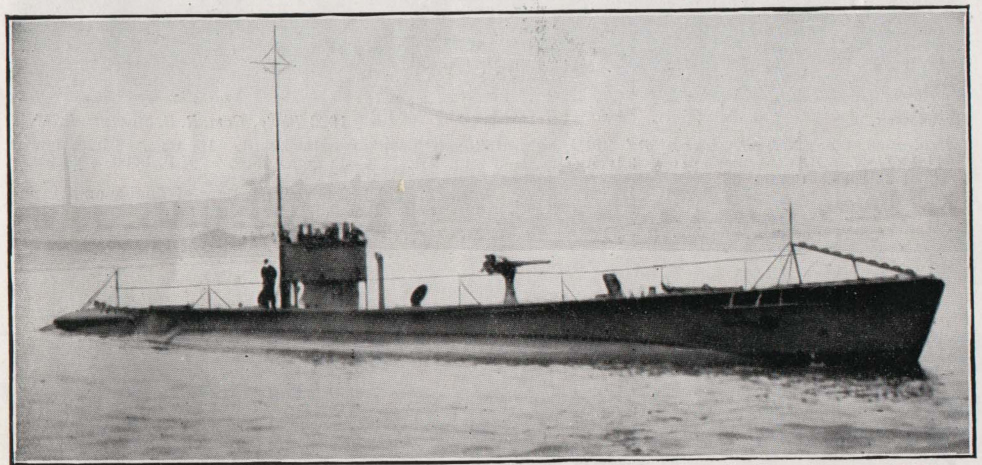
## 3 "E" Class.

X Havhesten

3 *Navy* type: ***Havmanden*** (June, 1937), ***Havfruen*** (1937), ***Havkalven***. Building at Royal Dockyard, Copenhagen. 400 tons. Enlarged editions of "C" class. Armament: **1**—3 inch, **2**—40 mm. AA. **5**—18 inch tubes (3 bow, 2 stern). B. & W. Diesels. Surface speed 15/8 kts. (A fourth unit of "E" class is *projected.*)

Все [illegible] и в [illegible]

## 2 "D" Class.



DRYADEN. (Mast since struck).

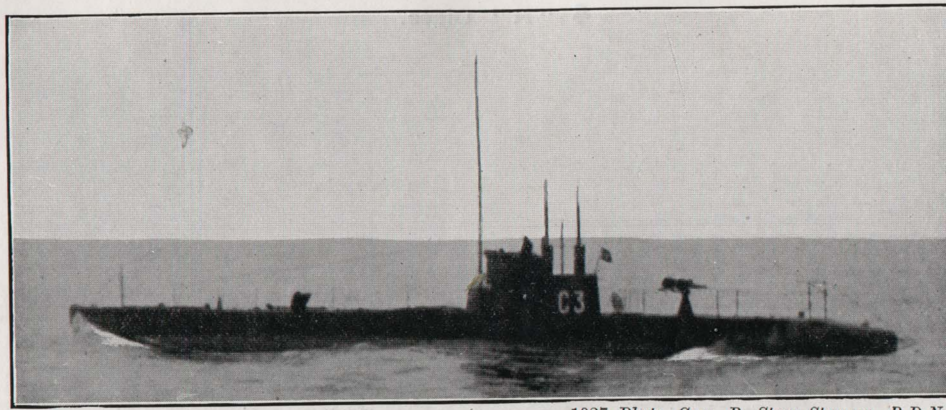
1928 *Photo, Com. R. Steen Steensen, R.D.N.*

2 *Navy* type: ***Daphne*** (Dec., 1925), ***Dryaden*** (June 3, 1926). Built at Royal Dockyard, Copenhagen. Displacement: 310/381 tons. Dimensions: *About* 160 × 16 × 8·5 feet. Burmeister & Wain type Diesels. H.P.: 900/400 = 13·5/6·5 kts. Armament: **1**—3 inch gun **1**—20 mm. AA., **4** bow and **2** stern 18 inch tubes. *Daphne* completed 1926, *Dryaden* 1927. Complement: 24.

в строю

U-1 (бывш. англ. Dzik) } 540/730 13/9 уз 1-76 2-20 4-533
U-2 (—"— —"— Vulpine)
U-3 (—"— —"— P-52)

## 3 "C" Class.

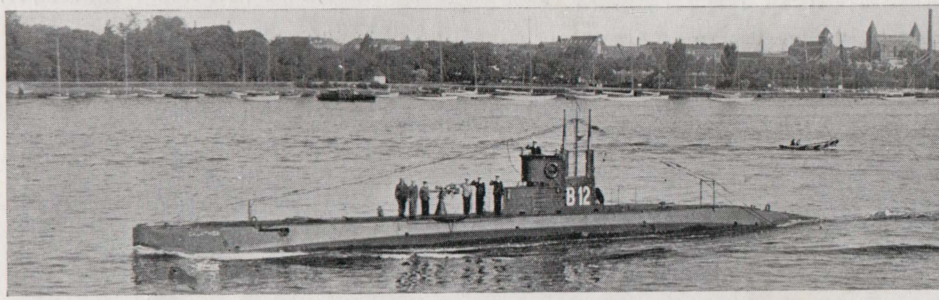


FLORA. (No mast now.)

1927 *Photo, Com. R. Steen Steensen, R.D.N.*

3 *Navy* type: ***Bellona*** (1919), ***Flora*** (1920), and ***Rota*** (1918). All built at Royal Dockyard, Copenha Displacement: 300/369 tons. Dimensions: 155¾ × 14½ × 9½ feet. Armament: **1**—6 pdr. AA.; **4**—18 inch tor tubes: 3 bow, 1 stern. *Rota* has one deck tube in addition before C.T. Burmeister & Wain type Diesels. H 900/640 = 14/8 kts. Complement: 24.

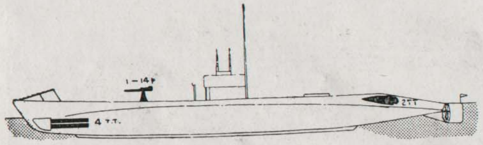
## 3 "B" Class.



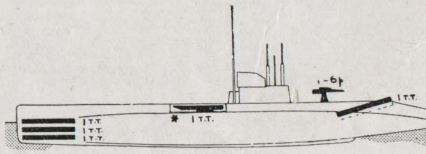
GALATHEA.

1935, *Com. R. Steen Steensen, R*

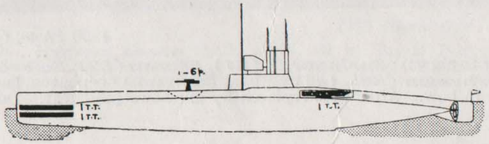
3 *Holland* type: ***Galathea*** (1916), ***Ran*** (1915), ***Triton*** (1915), all built at Royal Dockyard, Copenh Displacement: 177/235 tons. Dimensions: 133¼ × 12¼ × 8 feet. Armament: **3**—18 inch torpedo tubes, 2 1 stern, **1**—6 pdr. AA. gun. Burmeister & Wain type Diesels. H.P. 450/340 = 13/6·5 kts. Complement



"D" CLASS.

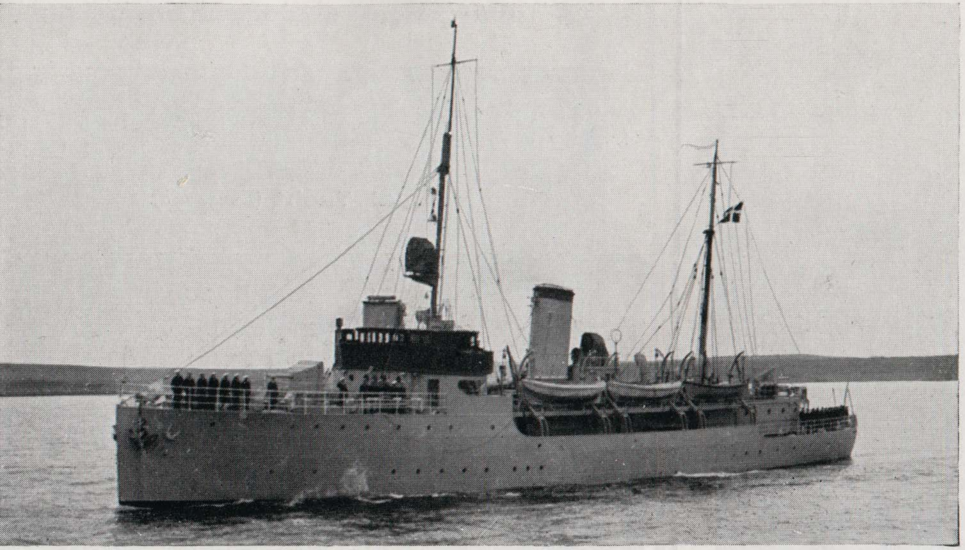


"C" CLASS.

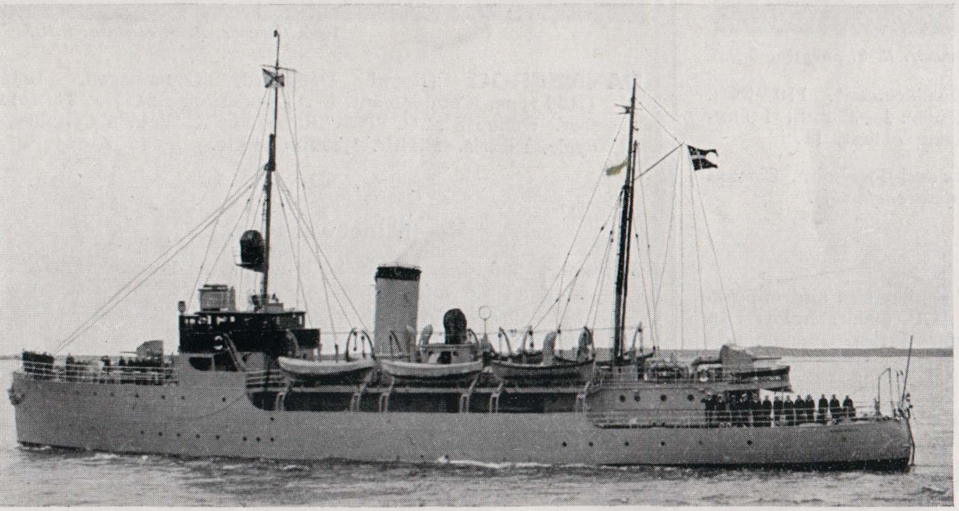


"B" CLASS.

*ote.*—A Surveying Vessel of about 315 tons is *projected* for laying down in 1938. Complement : 30 to 40. Dimensions : 134 × 24 × 7¼ feet. Steam engines and oil-fired boilers.



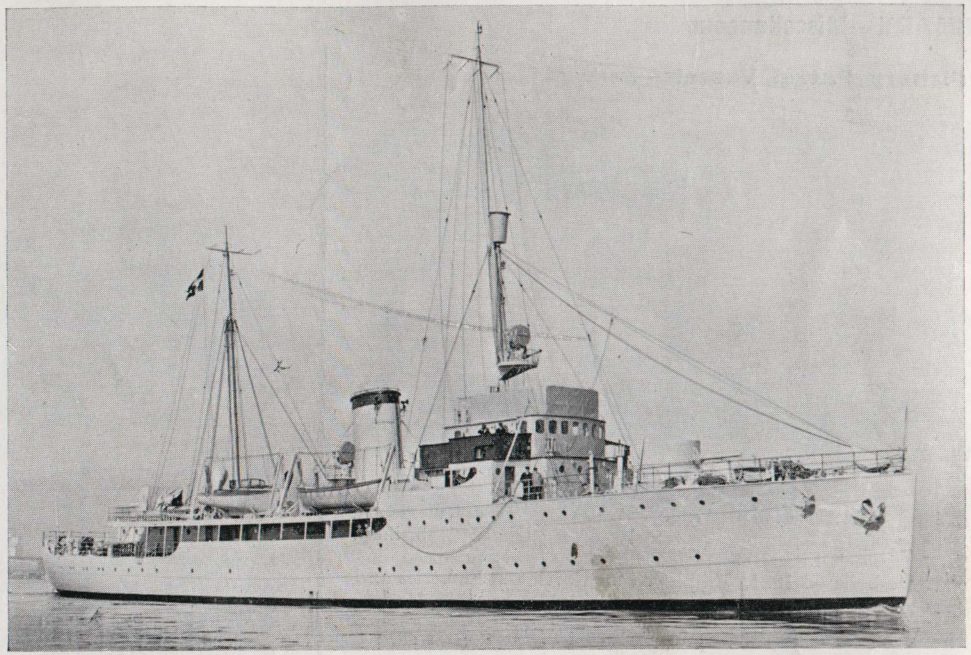
1936, *Com. R. Steen Steensen, R.D.N.*



HVIDBJÖRNEN.

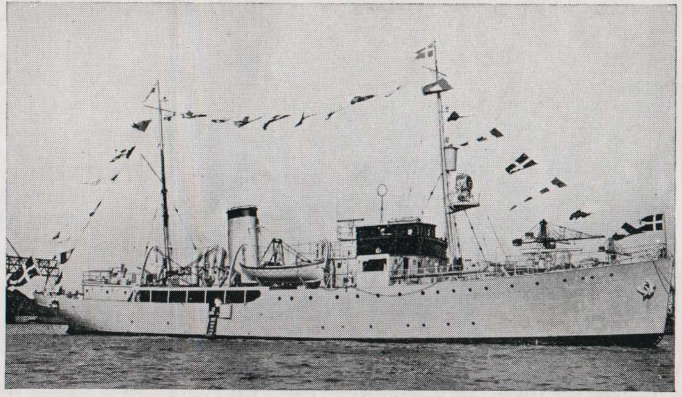
1936, *Com. R. Steen Steensen, R.D.N.*

**HVIDBJÖRNEN** (Royal Dockyard, Copenhagen, 1928). Displacement : 1,050 tons. Complement, 61. Dimensions : 196¾ (*p.p.*) × 32 × 13 feet (*mean* draught). Guns : **2**—3·5 inch. Machinery : Double compound Lentz valve engine. 1 shaft. I.H.P. : 1,800 = 14·5 kts. 2 boilers (1 Babcock, 1 Thornycroft). Oil : 140 tons. Radius : 2,300 miles at 12 kts. On service in Icelandic waters. Classed as *Fiskeriinspektionsskib*.



1934 *Photo, Official.*

**INGOLF** (Royal Dockyard, Copenhagen, 1933). Displacement : 1,180 tons. Complement : 66. Dimensions : 213¼ (*p.p.*), 224 (*o.a.*) × 35½ × 16 feet (*max.*). Guns : **2**—4·7 inch, **2**—6 pdrs./57 mm., **2**—20 mm. AA., **2**—8 mm. AA. Machinery : Triple expansion. 1 shaft. H.P. : 2,935 = 16·5 kts. Boilers : 2 Thornycroft. Oil : 170 tons. Radius : 5,300 miles at 12 kts. On service in Greenland waters. Visits Iceland occasionally. Classed as *Fiskeriinspektionsskib*.

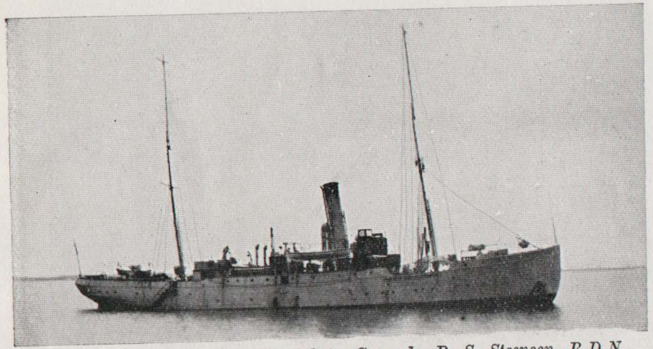


1935, *Com. R. Steen Steensen, R.D.N.*

**HEJMDAL** (Royal Dockyard, Copenhagen, Feb. 1, 1935). Displacement 830 tons. Complement : 40. Dimensions : 175 × 30 × 12 feet. Guns : **2**—3 inch, **4**—20 mm. AA., **2**—8 mm. AA. Machinery : Triple expansion. 1 shaft. H.P. : 800 = 13 kts. Boilers : 2 cylindrical. Oil : 100 tons. Radius : 4,000 miles at 12 kts. Completed April, 1935. Classed as a Surveying Vessel, but also employed on Fishery Protection duties in Greenland waters and off the Färöes.

## DENMARK—Miscellaneous

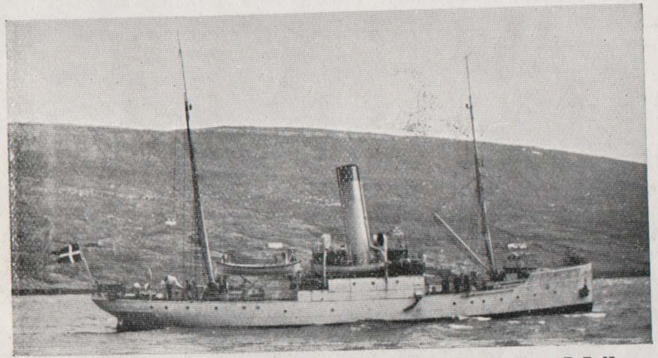
### Fishery Patrol Vessels—*continued.*



1921 *Photo, Commdr. R. S. Steensen, R.D.N.*

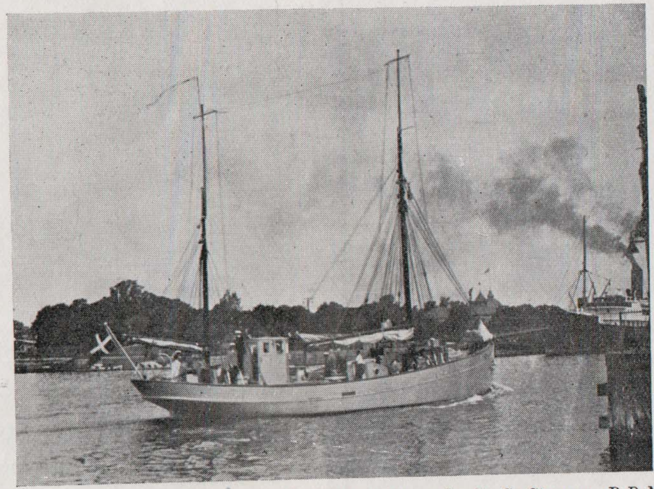
+ **ISLANDS FALK** (Elsinore 1906). 730 tons. Complement, 64. 170·6 (*p.p.*), 183·6 (*o.a.*) × 29·3 × 16·9 feet. Guns : **2**—3 inch, **2**—3 pdr. I.H.P. 1100 = 11·7 kts (*f.d.*) Cruising speed is 9 kts. Re-boilered 1921. Employed on North Sea Fisheries and Färöes.

Now has short Topmasts. To be replaced in near future.



1921 *Photo, Commdr. R. S. Steensen, R.D.N.*

**BESKYTTEREN** (1900). 415 tons. Comp. 73. 134 (*p.p.*), 142·5 (*o.a.*) × 24·8 × 12·5 feet. Guns: **1**—6 pdr., **2**—3 pdr. I.H.P. 620 = 11 kts (*f.d.*). Cruising speed is 9 kts. Re-boilered 1920 Employed in North Sea and inside Skaw. At certain seasons serves as midshipmen's training ship and aircraft tender.



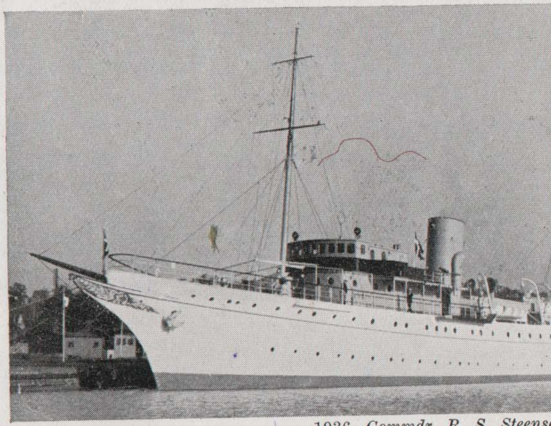
1932 *Photo, Commdr. R. S. Steensen, R.D.N.*

**MAAGEN** (Frederikssund, 1930). Displacement, 110 tons. Dimensions : 71½ × 16½ × 9½ feet. Guns : **1**—37 mm. 1 Tuxham motor. I.H.P., 108 = 8 kts. Complement, 11.

On service in Greenland waters. Färöes and Bornholm. Classed as Fishery Patrol Cutter (*Fiskeriinspektionsfartöj*).

**TERNEN** (Faaborg, 1937.) Wood. Of similar size and appearance to *Maagen*. Diesel engines. B.H.P. 600. Employed on fishery research and coastal surveying duties, Greenland.

### Royal Yacht (*Kongeskib*).



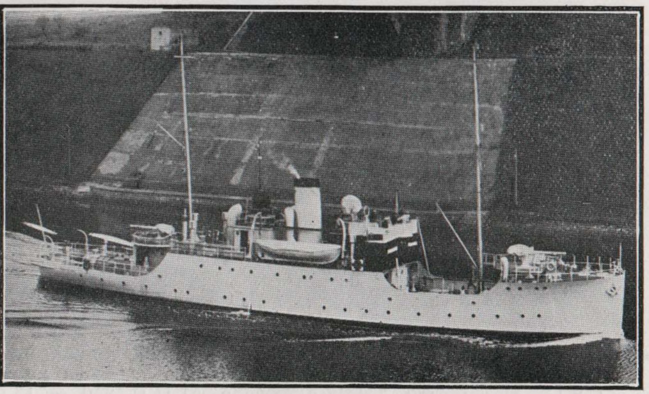
1936, *Commdr. R. S. Steens*

**DANNEBROG** (Royal Dockyard, Copenhag
1,130 tons. Complement, 57. Dimensions : 245¾
feet. Guns : **2** M.G. Two Burmeister & Wain 8
cycle, Diesels. B.H.P. 1,800 = 14 kts.

### Minesweepers.

3 *building*. 300 tons. Guns : **2**—3 inch, some smaller,
Equipped for minelaying. Speed : 18 kts. App
resemble *T*.4 type, on an earlier page, but with a s

### Submarine Depôt and Repair Ship.

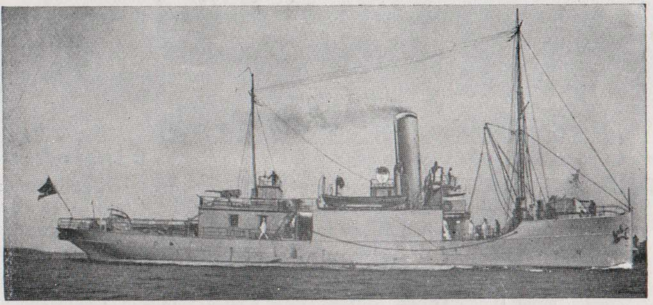


Henrik Gerner. 1928 *Photo.*

**HENRIK GERNER** (Royal Dockyard, Copenhagen, 1927). Displacement: 463 tons. 160 × 27 × 9·3 feet. Guns: 2—3 inch, 2—8 mm. AA. 2 Burmeister & Wain 6-cylinder, 4-cycle Diesel engines of 900 combined B.H.P. = 13·2 kts. Oil: 45 tons. Complement: 46. Fitted for minelaying.

### Minelayer (*Mineskib*).

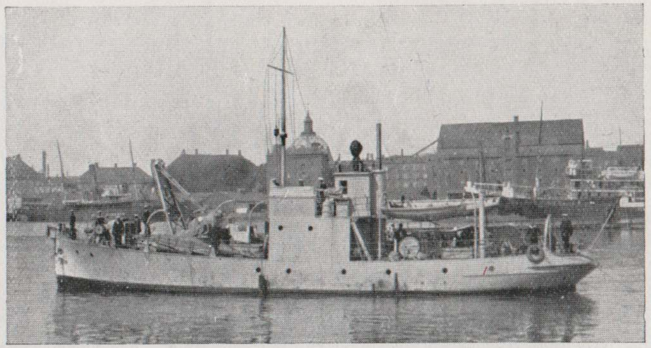
ote.—It is proposed to build a new vessel of 500 tons to replace *Lossen.*



*Photo, Ministry of Defence (added 1921).*

**LOSSEN** (1910). 640 tons. Complement, 61. 149¼ (*pp.*) × 28 × 10 feet. Guns: 2—3 inch, 2—8 mm. AA. I.H.P.: 900 = 12 kts. Coal: 44 tons. 175 mines carried.

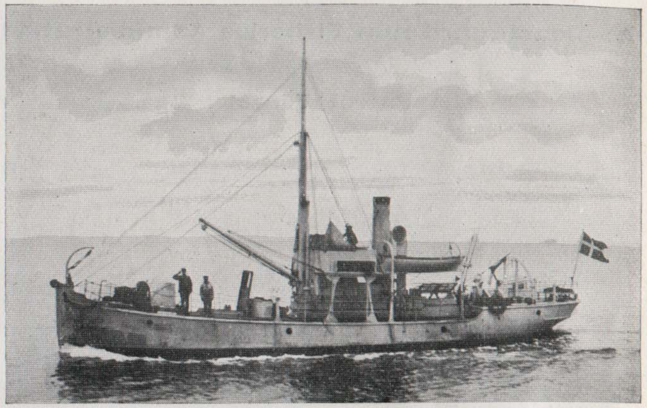
### Mining Tenders (*Minefartöier*)



1920 *Photo, Com. R. Steen Steensen, R.D.N.*

X**KVINTUS** (1917), X**SIXTUS** (1919), (Royal Dockyard, Copenhagen) 186 tons. Dimensions: 88·5 (*p.p.*) × 20·7 × 6·6 feet (*mean* draught). Guns: 2—1 pdr. Machinery: in each, 2 sets of Bergsund surface-ignition, heavy-oil motors and electric drive. B.H.P. 300 = 8 kts. Complement, 27. Carry 60 mines.

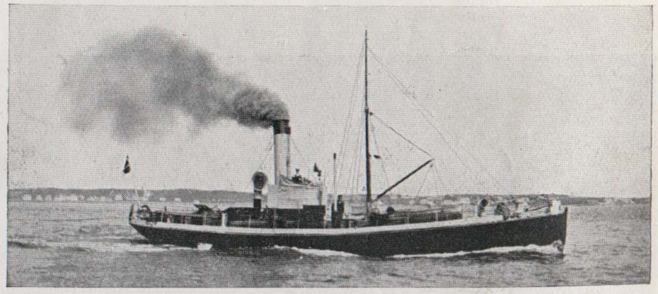
### Harbour Tender.



1930 *Photo, Com. R. Steen Steensen, R.D.N.*

**DAMPBAAD A** (ex-*Minekran I*) (1896). 96 tons. Dimensions: 72·2 × 16·4 × 6·6 feet. Guns: 2 machine. Speed: 7 kts. Complement, 18.

### Torpedo Tender (*Torpedo Transportbaad*).



1920 *Photo, Com. R. Steen Steensen, R.D.N.*

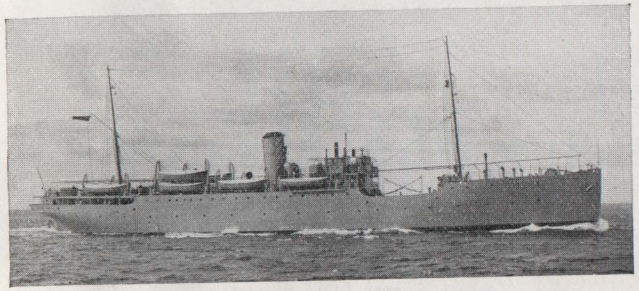
**SLEIPNER** (1882) 80 tons. 73 × 14·8 × 5·9 feet (*mean* draught). Guns: none. I.H.P. 110 = 9 kts.

# EGYPT.

Mercantile Marine: ("Lloyd's Register" 1937 figures) 46 vessels of 69,925 tons gross.

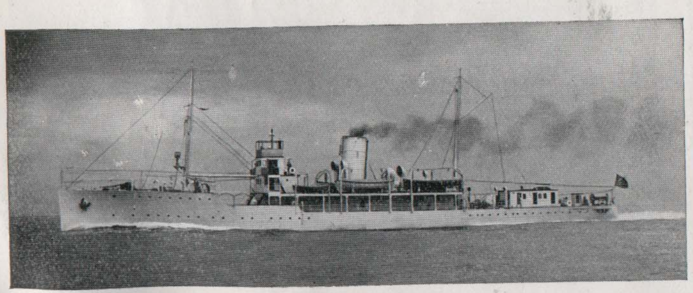
## A:—Coastguard and Fisheries Administration.

### Patrol Vessels.



1930 *Photo, Swan, Hunter.*

**EL AMIRA FAWZIA** (Swan, Hunter, July 8th, 1929). 2,640 tons. Dimensions: 275 × 36 × 14 feet. Guns: 2—3 pdr. Machinery: Triple expansion. H.P.: 2,750 = 14 kts. 2 screws. 2 S.E. boilers (working pressure, 180 lbs.). Oil fuel. Fitted as transport for 400 men and 40 horses. Normally employed on coasting service carrying passengers. Complement, 79.

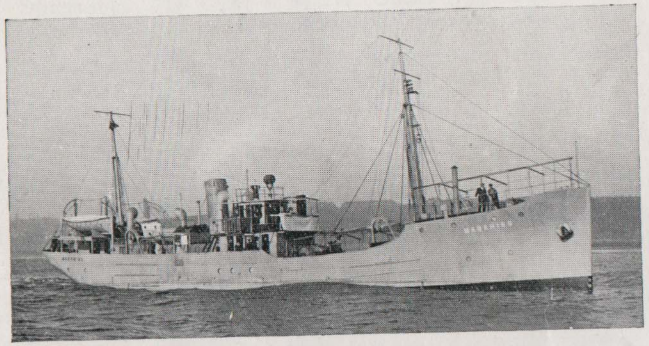


**EL AMIR FAROUQ** (Hawthorn. Leslie, 1926). 1441 tons. Dimensions: 247 × 34 × 13¼ feet. Guns: 1—6 pdr. 4 M.G. Machinery: Triple expansion. 2 screws. I.H.P.: 2,000 = 17 kts. Oil fuel. Complement, 70.

### Patrol Vessels—*continued.*

**AL SAREA** (J. S. White & Co., Ltd., 1936). Dimensions: 55 × 11½ × 3⅙ feet. Guns: **1**—37 mm. Machinery: 2 Kermath 12-cyl. petrol engines. H.P.: 900 = 35 kts. Fuel: 340 gallons. Complement: 9.

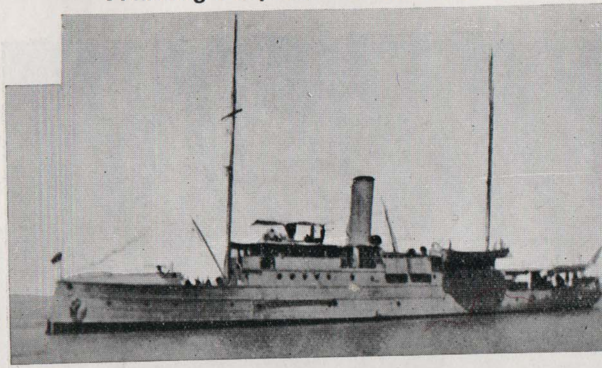
### Surveying Vessel.



1930 *Photo, Swan, Hunter.*

**MABAHISS**—Built by Swan, Hunter, and completed 1930. Employed on research work. Displacement: 618 tons. Dimensions: 138 × 23½ × 13½ feet. Machinery: Triple expansion. I.H.P. 650 = 11 kts. Complement, 39.

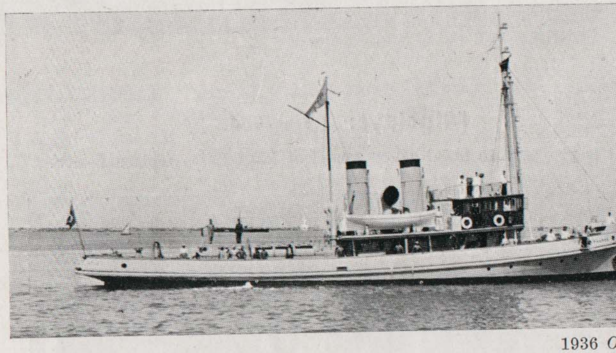
### Training Ship for Cadets and Men.



**ABDEL MONAYM** (Clydebank, 1902). 610 tons. Dimens 177 (*p.p.*) × 26½ × 12¼ feet *max.* draught. Guns: 1 S.L. Machinery: Triple expansion. I.H.P. 850 = kts. Complement: 88. (No longer sea-going.)

## B:—Ports and Lighthouses Administration

### Salvage Tug



1936 C

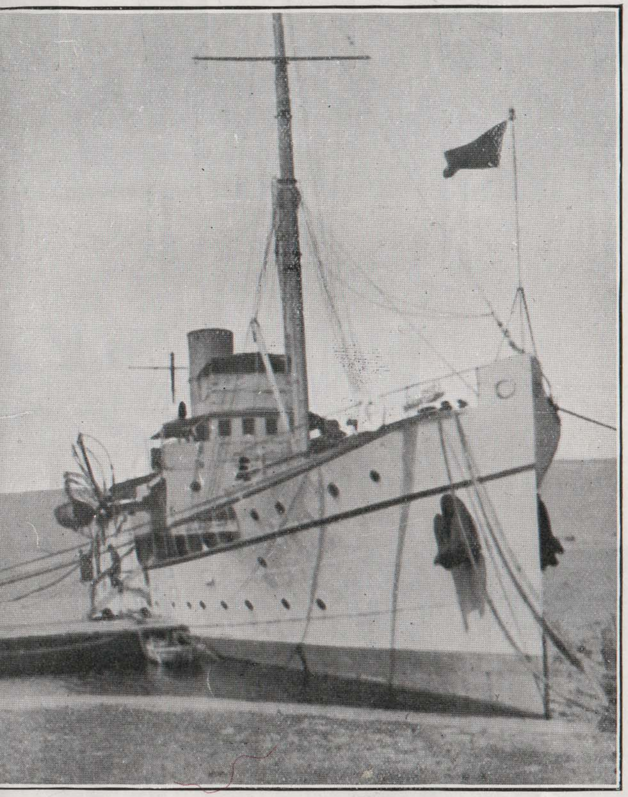
**PHAROS** (1929). Displacement, 455 tons. Dimen 131 feet (*o.a.*) × 27 × 14 feet *depth.* I.H.P. 1,000 = Equipment includes 2—10 inch centrifugal pumps, ca 500 tons per hour. (There are 2 smaller tugs, *Teir-e* and *Safaga*, 195 and 80 tons respectively.)

### Inspection Vessel and Store Carrier.

**NAPHTYS** (1905). 650 tons. Dimensions: 187 34·9 × 8·5 feet. Speed: 7·5 kts. Complement, 45.

## :—Ports and Lighthouses Administration
*—continued*

### Transport (*ex*-Sloop).



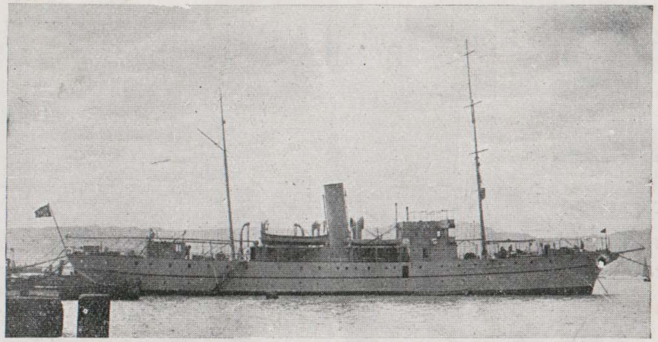
SOLLUM. 1927 *Photo, Lieut.-Com. R. H. Mandley, R.N.*

**OLLUM** (ex-British Sloop *Syringa*, of *Anchusa* class, built by Workman, Clark & Co., 1917). Displacement, 1,290 tons. Dimensions: 255¼ (*p.p.*), 262¼ (*o.a.*) × 35 × 12 feet. Guns: 1—3 pdr. I.H.P. 2,500 = 16 kts. 1 screw. Coal: 260 tons. Many alterations have been effected at considerable cost to fit this vessel for accommodation of Government officials on visits of inspection, etc., to Mediterranean coast. Complement, 77.

### Coastal Motor Boats.

| | | | |
|---|---|---|---|
| **NOOR EL BAHR** | 20 tons. | 56 feet. | 20 kts. |
| **QAMAR** | 23 tons. | 71 feet. | 11 kts. |
| **EL HOOT** | 24 tons. | 46 feet. | 7 kts. |

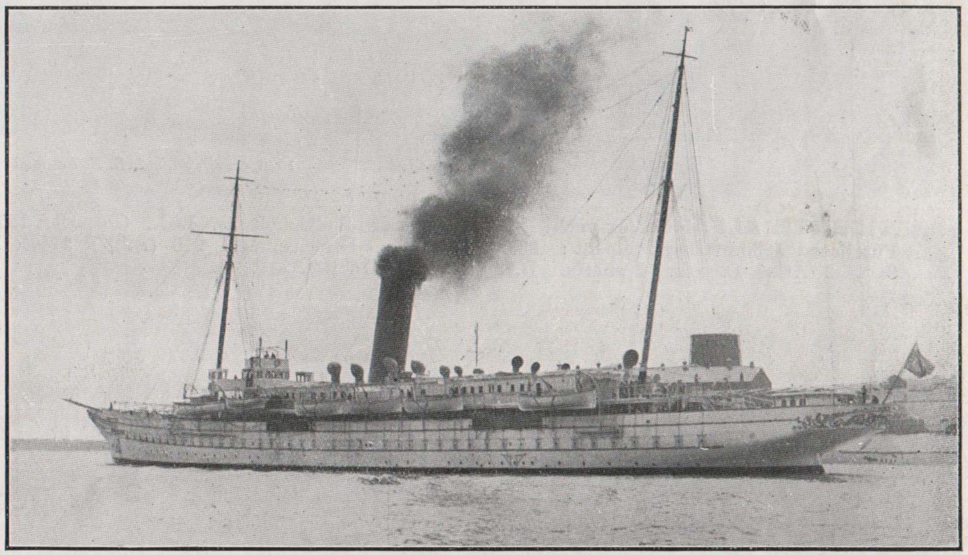
### Lighthouse Tender.



Foretopmast since removed.

**AÏDA** (A. & Ch. de la Loire, Nantes, 1911). 1428 tons *gross*. Dimensions: 246⅓ × 31¾ × 13½ feet draught. I.H.P. 1300 = 11 kts. 1 screw. Serves in Red Sea. Complement, 63.

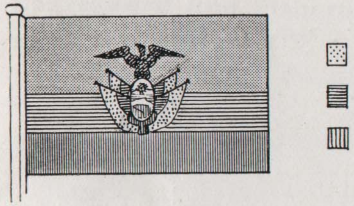
## C:—Royal Yacht.



MAHROUSSA. 1927 *Photo, Cribb.*

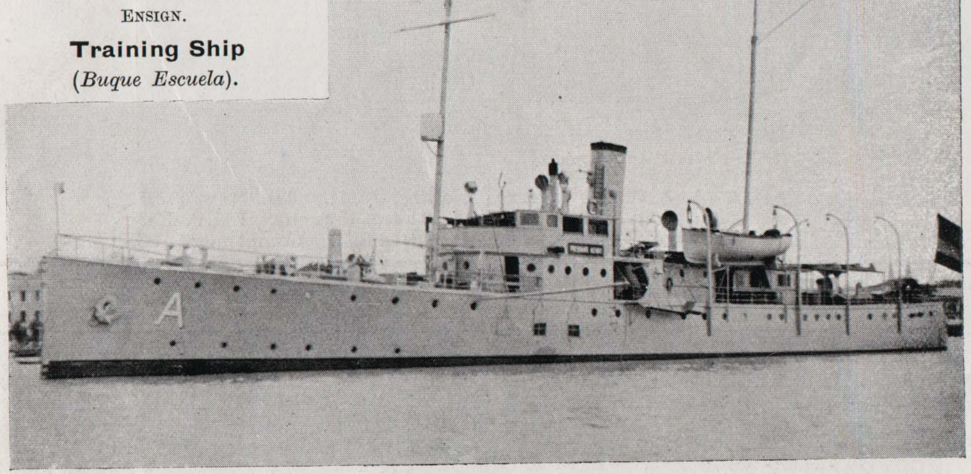
**MAHROUSSA.** Iron. Built by Samuda Bros., Poplar, 1865. Reconstructed by A. & J. Inglis, Glasgow, 1905, and re-fitted 1927 at Portsmouth Dockyard. Displacement: 4561 tons. Dimensions: 400 (*p.p.*), 420 (*w.l.*), 477⅚ (*o.a.*) × 42¾ × 17¼ feet draught. Machinery: 3 Parsons turbines. Boilers (new 1905): 5 main and 1 auxiliary Inglis multitubular. 3 screws. S.H.P. 5500 = 16 kts. Oil: 346 tons. Complement, 164.

# ECUADOR



ENSIGN.

**Training Ship**
(*Buque Escuela*).

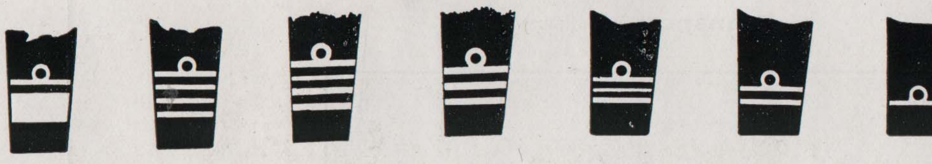


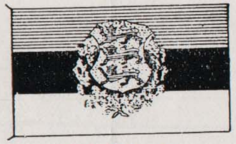
1936, *courtesy Lieut. L. F. Bouman*

**PRESIDENTE ALFARO** (ex-yacht *Ara*). (Camper & Nicholsons, Ltd., Gosport, 1917). Purchased 1935. Displacement: 867 tons *gross*. Dimensions: 213 (*w.l.*) × 31¼ × 14½ feet. 2 Atlas Diesels. 2 shafts. B.H.P. 2,400 = 16 kts.

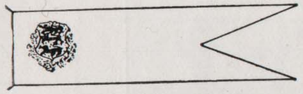
# ESTONIA

## Naval Uniforms.

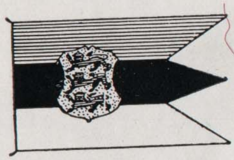

Rank
(British equivalent)
Kontradmiral
(Rear-Admiral)
Mereväe-Kapten
(Captain)
Kapten-Leitnant
Commander.
Kapten-major
Lieut.-Commander.
Vanem-Leitnant
Lieutenant (senior).
Leitnant
(Lieutenant)
Noorem-Leitnant



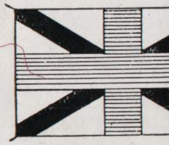
Chief of State.



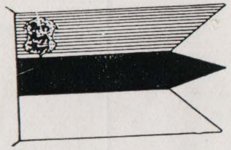
Pendant of Chief of State.



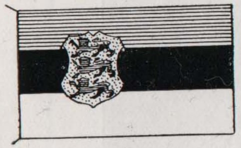
Ensign.



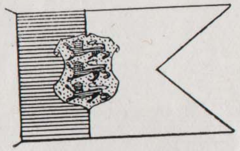
Jack,
Flag of Coastal B



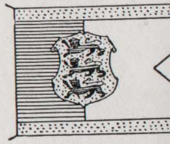
Auxiliary Craft. (Ensign.)



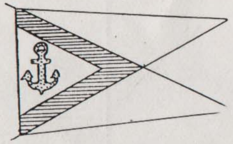
Minister of War.



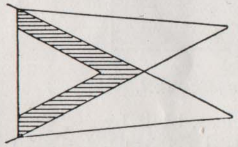
Rear-Admiral



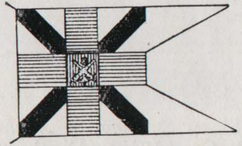
C. in C.



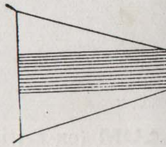
Chief of Naval Forces
(If not a flag officer).



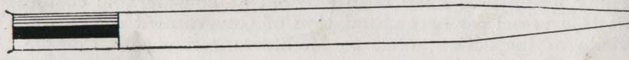
Chief of Division.



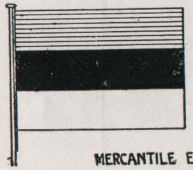
Chief of Coastal Batteries



S.N.O.



Masthead Pendant.

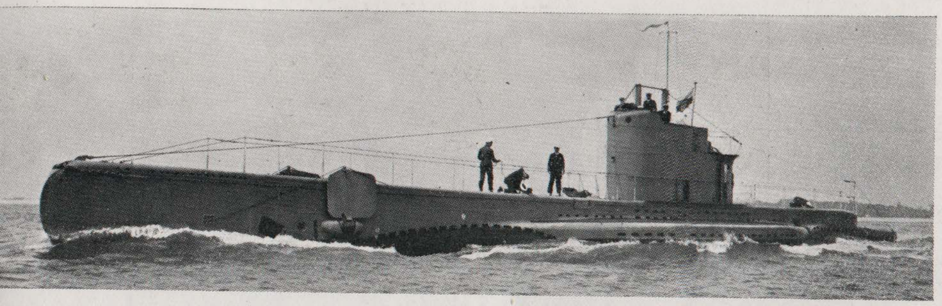


▤ PALE BLUE.
■ BLACK.
☐ WHITE.

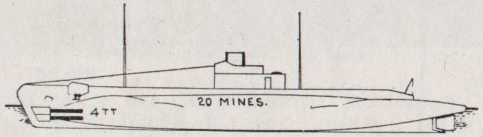
MERCANTILE ENSIGN.

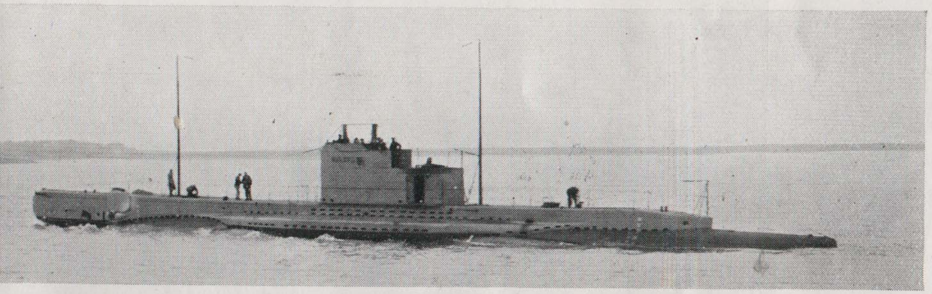
*Commander-in-Chief of Fleet and Coast Defence:* Captain V. G
*Chief of Naval Staff:* Captain V. Mere.
*Naval Officers and Men:* 1600
*Colour of Ships:* Grey.
*Mercantile Marine* ("Lloyd's Register" 1937): 170 vess
168,450 gross tonnage.

## Submarines.



EMBIT. 1937, *Wright & Logan.*



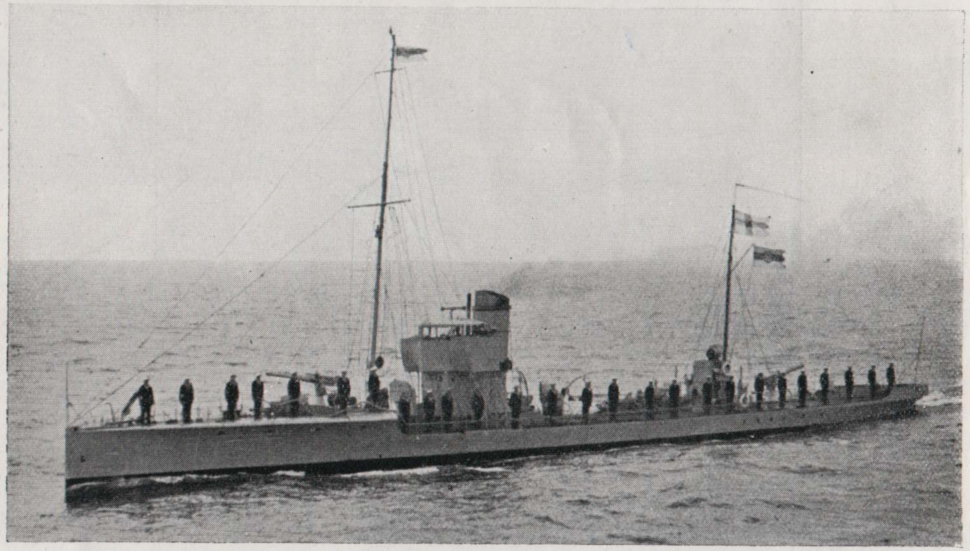


LEV. 1937, *courtesy Messrs. Vickers-Armstrongs (Builders).*

*kers-Armstrongs* type: ***Kalev, Lembit*** (July 7, 1936). Both built at Barrow. Displacement: 600/820 tons.
omplement: 30. Dimensions: 190 (*o.a.*) × 24½ × 11½ feet. Armament: 1—40 mm. AA. gun, **4**—21 inch Tor-
edo tubes (bow), **20** mines. Machinery: 2 Vickers Diesels. B.H.P.: 1,200 = 13·5 kts. on *surface*. Electric motors,
.P.: 450 = 8·5 kts. *submerged*. Radius of action, 2,000 miles at 10 kts.

## Torpedo Boats.

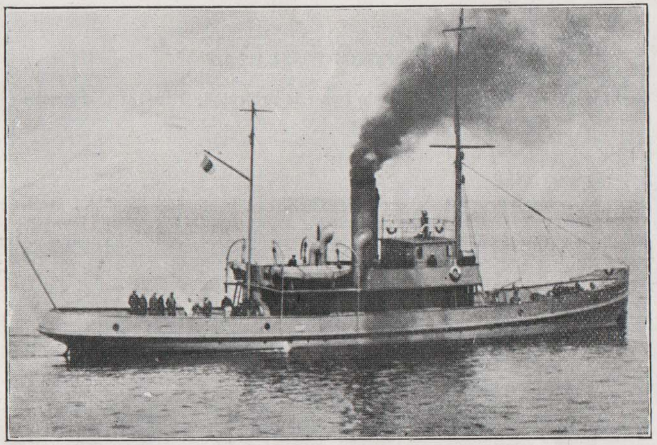
*Note.*—The construction of a number of motor torpedo boats is projected. Number and design still to be settled.



1934 *Photo, Official.*

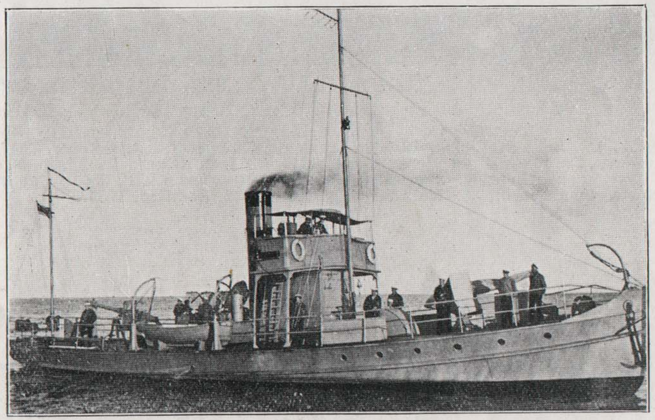
***Sulev*** (ex-German *A*32). Built at Elbing, 1916. (Sunk off Estonian Coast, October, 1917, salved and refitted 1923.) Displacement, 228 tons. Dimensions: 165½ × 17½ × 6 feet. Guns: **2**—3 inch, 50 cal. Torpedo tubes: **2**—18 inch, in double deck mounting. Can carry 10 mines. Designed S.H.P. 3500 = 26 kts. Oil: 50 tons = 975 miles at 20 kts. Complement, 35. Main mast shortened 1932. Refitted, 1935.

## Gunboats. *(Suurtükilaevad)*



1929 *Official Photo.*

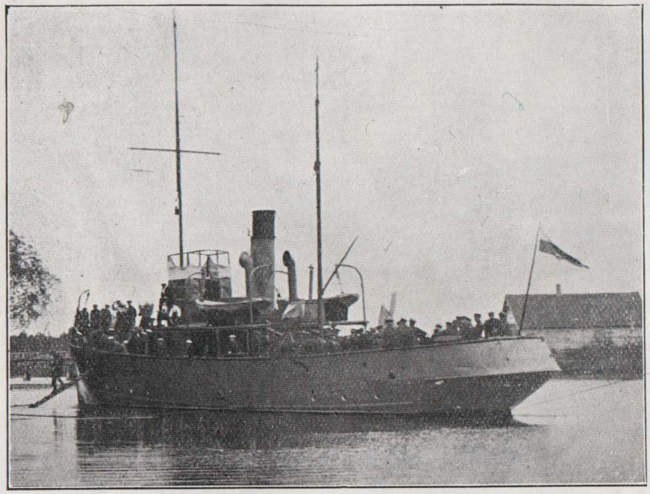
**LAINE** (1915). 400 tons. Dimensions: 129 × 20 × $11\frac{1}{2}$ feet. Guns: 2—75 m/m. Designed H.P. 350 = 12 kts. Coal: 30 tons. Complement, 25. (Refitted 1930).



1929 *Official Photo.*

**MARDUS.** Refitted 1921. 80 tons. Dimensions: 90 × 21 × 7 feet. Guns: 2—3 inch, 50 cal., 2 M.G. Designed H.P. 225 = 11 kts. Complement, 25. In Reserve.

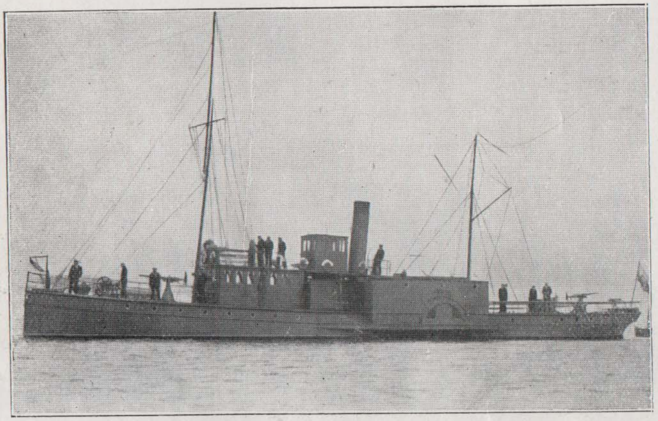
## Gunboats—*continued.*



1929 *Official Photo.*

***AHTI.** Built 1908, refitted 1929. 144 tons. Dimensions: $90\frac{1}{2}$ × $16\frac{1}{2}$ × 6 feet. Guns: 2—47 m/m., 2 M.G. Designed H.P. 220 = 10 kts. Complement, 17.

*Stationed in Peipus Lake.

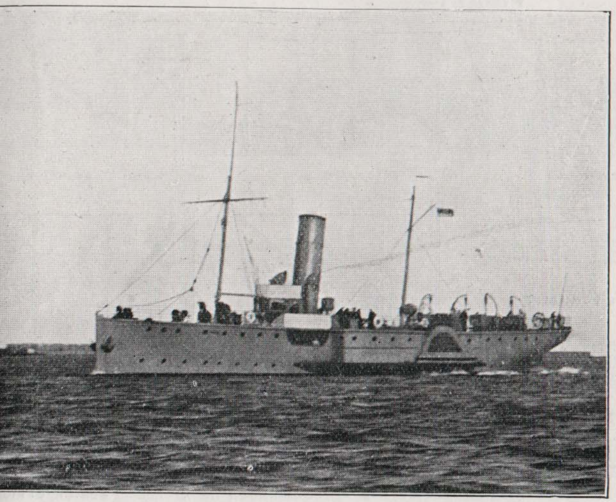


1929 *Official Photo.*

***TARTU.** Paddle vessel. Refitted 1919. 108 tons. Dimensions: $128\frac{1}{2}$ × $17\frac{1}{2}$ × $2\frac{3}{4}$ feet. Guns: 2—47 m/m., 2 M.G. Designed H.P. 120 = 11 kts. Complement, 20. (Refitted 1931).

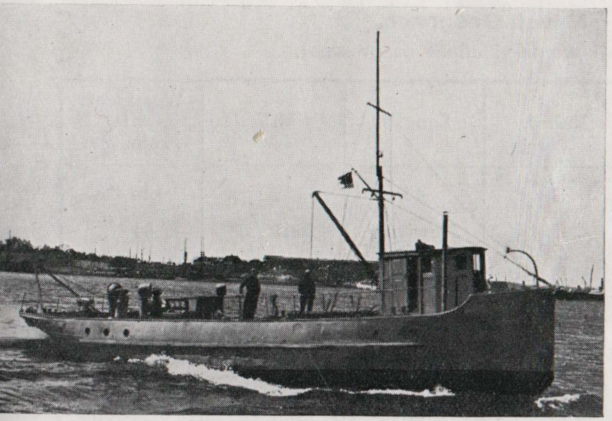
*Stationed in Peipus Lake.

## Minelayers.



RISTNA. 1929 *Official Photo.*

**STNA** (1908), **SUUROP** (1907). Paddle Vessels. Refitted 1927. 500 tons. Dimensions: 198½ × 49½ (over paddle boxes) × 6½ feet. Guns: **1**—3 inch, 50 cal., **1**—1 pdr. Pom-Pom. Designed H.P. 750 = 12·5 kts. Complement, 40. Also fitted for use as Minesweepers.

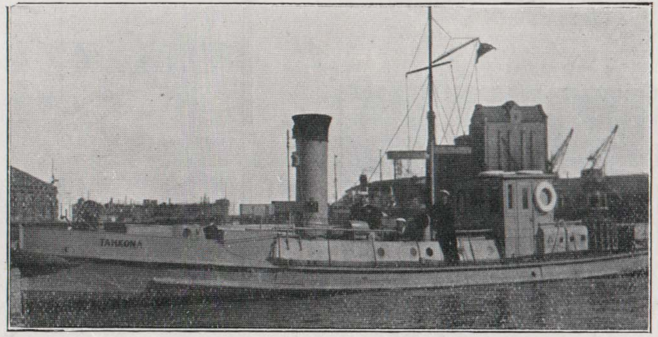


AINDLO. 1933 *Official Photo.*

**RI** (ex-*Kalev*, ex-Russian *M.8*), **VAINDLO** (ex-*Olev*, ex-Russian *M.10*) (1914). 50 tons. Dimensions: 68½ × 15 × 4 feet. Guns: **1**—57 m/m. Engines: 2 sets of petrol motors. Designed H.P. 80 = 9 kts. Complement, 10.

## Minesweeper.

(See also *Ristna* and *Suurop*, in preceding column.)

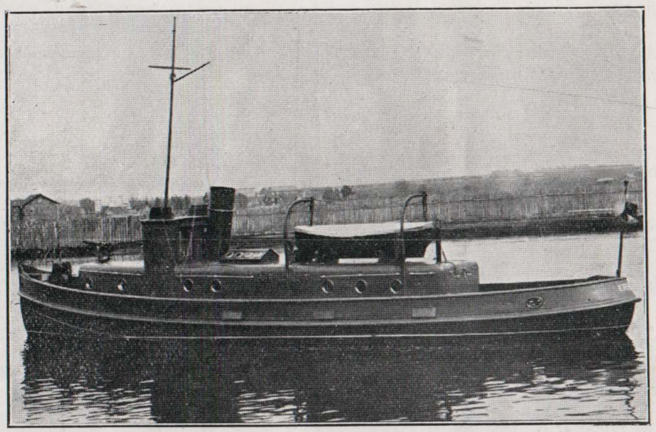


1929 *Official Photo.*

**TAHKONA** (1919). 45 tons. Dimensions: 57½ × 10½ × 5½ feet. Designed H.P. 150 = 12 kts. Complement, 8.

## Coastguard Vessels.

**KÕU.** Refitted 1928. 100 tons. Dimensions: 87 × 17½ × 8½ feet. Guns: **1**—50 m/m., **2** M.G. Designed H.P. 350 = 12 kts. Complement, 18.



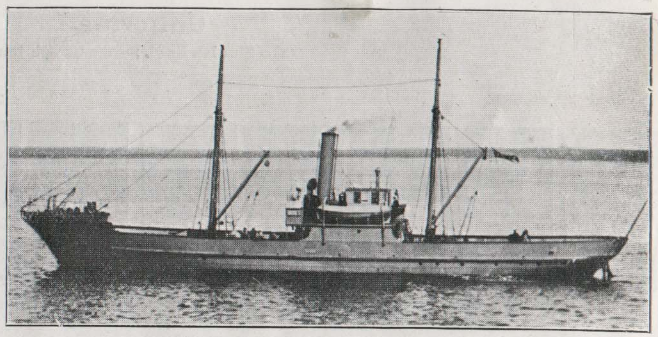
1929 *Official Photo.*

**ERILANE.** Built 1915, refitted 1919. 25 tons. Dimensions: 53 × 10 × 5 feet. **1** M.G. Designed H.P. 50 = 10 kts.

## Icebreakers.

**SUUR TÕLL** (ex-*Vainamoinen*, ex-*Volkynitz*, ex-*Tsar Mikhail Feodorovitch*, 1914) (4,800 tons), **TASUJA** (1,100 tons), and **JÜRI VILMS** (200 tons), are in peace-time all under the control of the Government Shipping Department.

## Tugs and Tenders.



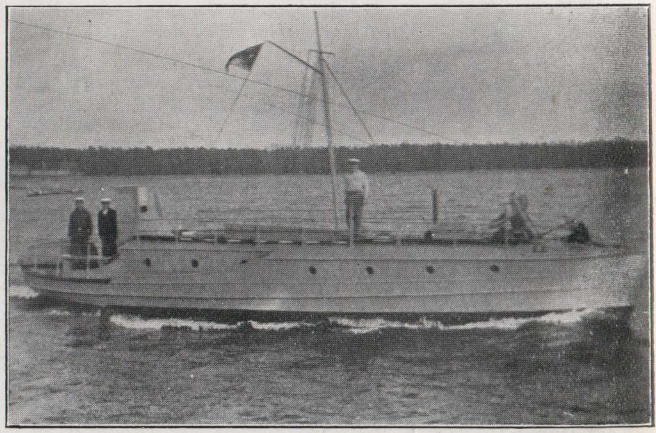
1929 *Official Photo.*

**KOMPASS** (1918). 300 tons. Dimensions: 143 × 21 × 12 feet. Designed H.P. 220 = 9 kts. Complement, 20. Fitted for cable laying.

**JAAN POSKA.** 250 tons. Dimensions: 101 × 21 × 9½ feet. H.P. 600 = 11 kts. Complement, 15. Commissioned in 1929 as a Tug-icebreaker.

**SAKALA.** 40 tons. Dimensions: 62 × 11 × 6½ feet. Designed H.P. 40 = 8 kts. Complement, 6.

**M.P.10.** 24 tons. Dimensions: 55½ × 9½ × 3½ feet. Designed H.P. 100 = 13·5 kts. Complement, 6.



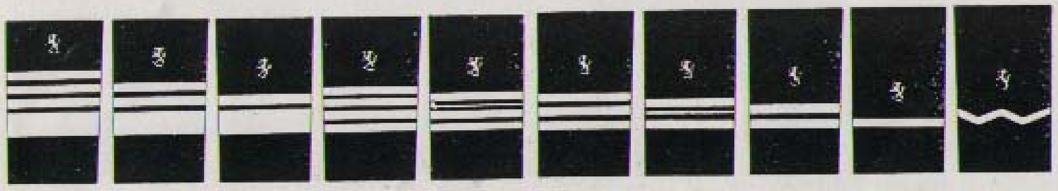
1929 *Official Photo.*

**M.P.8., M.P.14., M.P.23.** (1909). 12 tons. Dimensions: 53 × 13 × 6 feet. Designed H.P. 55 = 9 kts. Complement, 6.

# FINLAND.

## Uniforms.

(a)=Finnish Rank; (b)=British Rank.



(a) Amiraali. (b) Admiral.

(a) Vara-amiraali. (b) Vice-Admiral.

(a) Kontra-amiraali. (b) Rear-Admiral.

(a) Kommodori. (b) Commodore.

(a) Komentaja. (b) Captain.

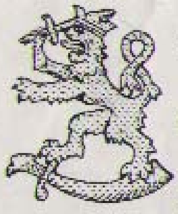
(a) Komentaja-kapteeni. (b) Commander.

(a) Kapteeni-luutnantti (b) Lieut.-Comdr.

(a) Luutnantti. (b) Lieutenant.

(a) Aliluutnantti. (b) Sub-Lieut.

(a) Reservialiluutnantti (b) Reserve Sub-Lt.



The figure over top stripe is the Lion of the Finnish Arms, as enlarged sketch reproduced herewith. Colour of cloth between stripes:—

*Engineers:* purple; *Paymasters:* silver stripes and 1 silver star; *Surgeons:* red; *Army officers in Naval Service:* green. *Reserve* officers have wavy stripes as R.N.V.R.

*Minister of Defence:* Juho Niukkanen.

*Chief of Sea Forces:* Major-General V. L. R. Valve.

*Chief of Staff:* Capt. S. Sundman.

*Commanding Coastal Fleet:* Capt. E. A. Rahola.

*Naval Attaché (London):* Commander Holger Gröndahl.

*Personnel:* Active List, including Coastal Artillery, about 4,500 officers and men.

## Wireless.

Marconi Western Electric and Telefunken systems used.

## Colour of Ships.

Grey

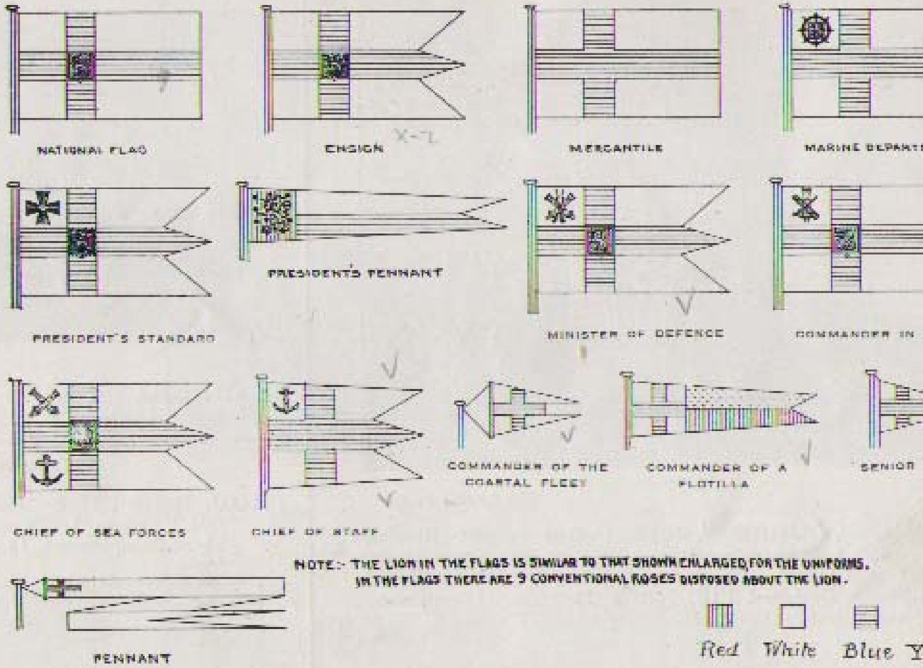
## Mercantile Marine.

(From "Lloyd's Register," 1937)

388 vessels of 549,146 *Gross* Tonnage.

По мирн договору
разрешено иметь
в сухопутн, зем. сил - 34400 чел
во флоте 4500 чел
в ВВС 3000 ч
Тоннаж - 10000 т
самолетов - 60

## Flags:—


NATIONAL FLAG
ENSIGN
X-7
MERCANTILE
MARINE DEPART
PRESIDENT'S STANDARD
PRESIDENT'S PENNANT
MINISTER OF DEFENCE
COMMANDER IN
CHIEF OF SEA FORCES
CHIEF OF STAFF
COMMANDER OF THE COASTAL FLEET
COMMANDER OF A FLOTILLA
SENIOR
PENNANT
Red
White
Blue Y

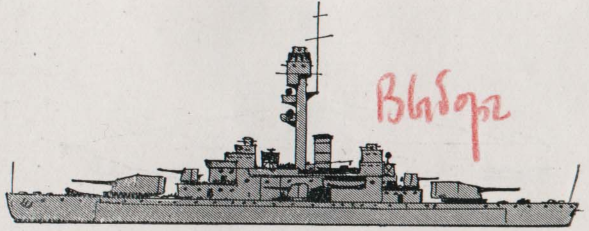
NOTE:- THE LION IN THE FLAGS IS SIMILAR TO THAT SHOWN ENLARGED FOR THE UNIFORMS. IN THE FLAGS THERE ARE 9 CONVENTIONAL ROSES DISPOSED ABOUT THE LION.

## Naval Ordnance.

(Not all mounted afloat at present).

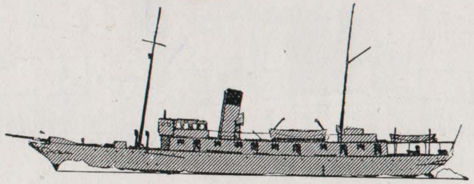
| Calibre inches. | m/m. | Maker. | Length. | M.V. | Weight of A.P. projectile. |
|---|---|---|---|---|---|
| 10 | 254 | B | 45 | 2788 fps. | 495 lbs. |
| 6 | 150 | C | Howitzer | 2601 ,, | 91 ,, |
| 4·7 | 120 | A | 41 | 2132 ,, | 44 ,, |
| 4·7 | 120 | V | 50 | 3001 ,, | 44 ,, |
| 4·7 | 120 | C | 45 | 2699 ,, | 44 ,, |
| 4·1 | 105 | B | 50 | 2952 ,, | 35 ,, |
| 4 | 102 | C | 60 | 2706 ,, | 38·5 lbs. |

A=Armstrong. B=Bofors. C=Schneider-Canet. V=Vickers.

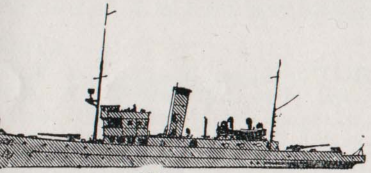


Выборг

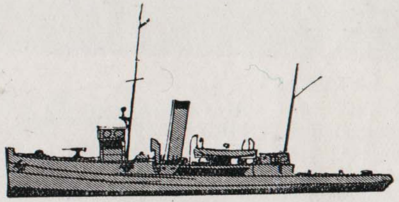
VÄINÄMÖINEN. ILMARINEN.



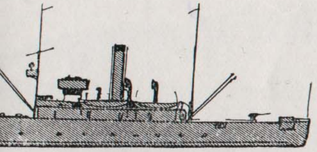
AURA.



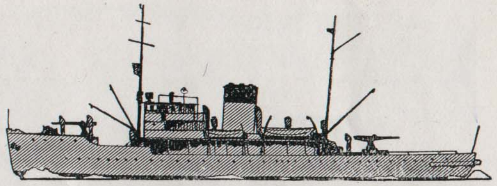
HÄMEENMAA.
UUSIMAA.



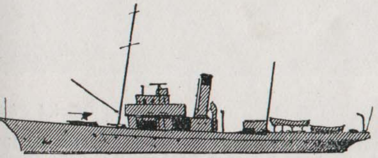
KARJALA.
TURUNMAA.



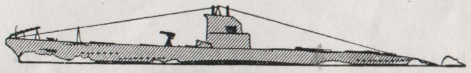
LOUHI.



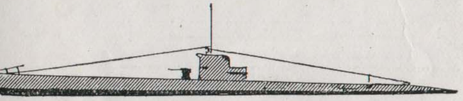
NEW S/M DEPOT SHIP.



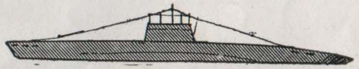
RAUTU. VILPPULA.



VESIKKO.



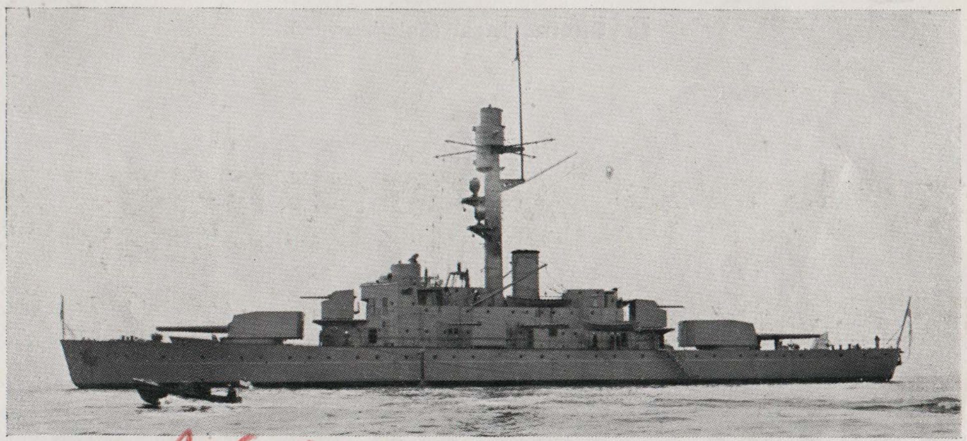
VETEHINEN *class*.



SAUKKO.

## Coast Defence Ships.

(*Panssarilaivat*)



VÄINÄMÖINEN. 1937, *Fighting Ships.*

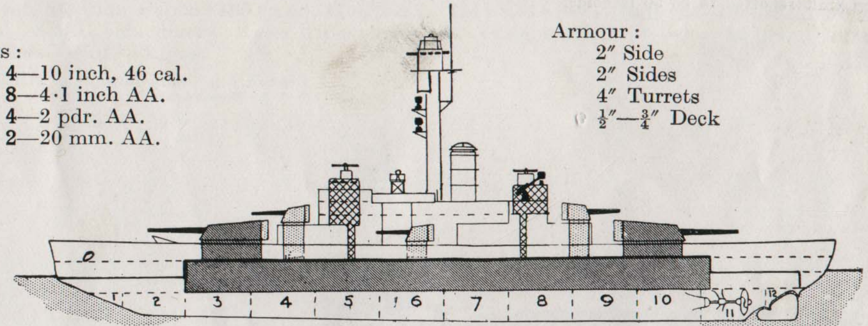
Выборг

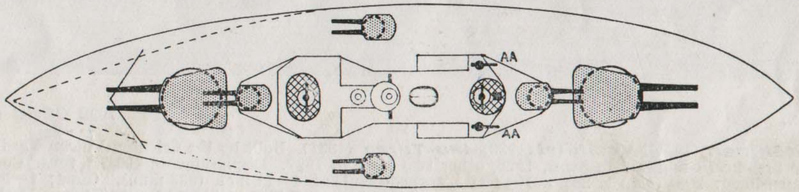
**VÄINÄMÖINEN** (Dec. 20, 1930). **ILMARINEN** (July 9th, 1931).

Built by A. B. Crichton-Vulcan, Turku, (Åbo).
Displacement : 3,900 tons. Complement, 329.
Dimensions : 305 × 55½ × 14¾ feet.

Guns :
- 4—10 inch, 46 cal.
- 8—4·1 inch AA.
- 4—2 pdr. AA.
- 2—20 mm. AA.

Armour :
- 2″ Side
- 2″ Sides
- 4″ Turrets
- ½″—¾″ Deck

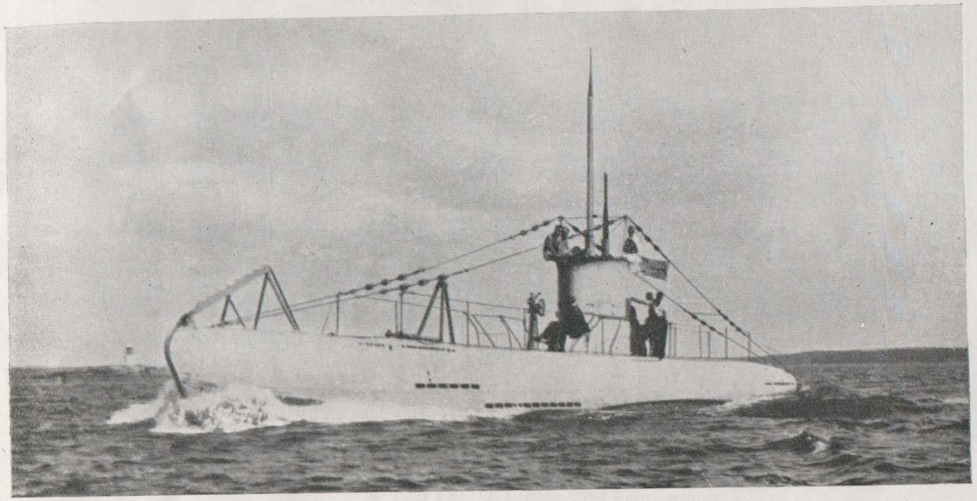




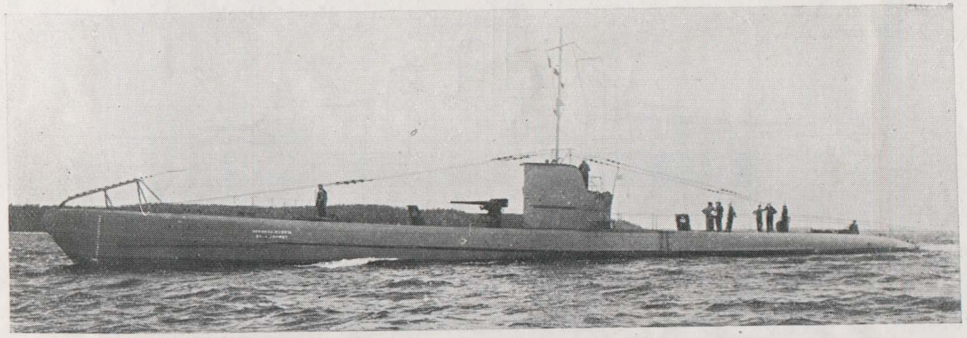
Machinery : Germania Diesels with electric drive, Leonard system, by Brown, Boveri & Co. 2 shafts. B.H.P. : 5,000 = 15·5 kts. Fuel : 93 tons.

*Notes.*—Laid down Aug.-Sept., 1929. Completed 1932 and 1933, respectively. Guns: Max. elevation of 10 inch is 50°.

## 5 Submarines. (*Sukellusveneet*).

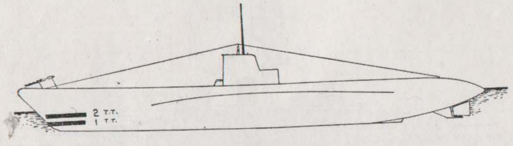


**Vesikko** (1933), built by Crichton-Vulcan Yard as a private speculation and taken over by Finnish Navy Jan. 1936. Displacement : 250/300 tons. Complement, 16. Dimensions : $134\frac{1}{5} \times 13 \times 13\frac{1}{2}$ feet. 1 M.G. Torpedo tubes : 3—21 inch. Machinery : Mannheim B.M.V. H.P. 700/180 = 13/7 kts. Fuel : 9 tons. Radius of action, 1,500/50 miles. Diving limit reported to be 50 fathoms.

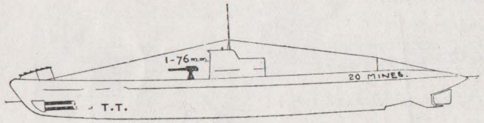


VETEHINEN. 1932 *Official Photo.*

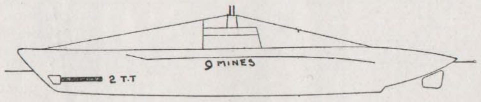
3 boats : **Vetehinen** (1930), **Vesihiisi** (1930), **Iku-Turso** (1931). Built by the Crichton-Vulcan Yard at Turku, Abo, the first keel being laid in Sept., 1926, other two early in 1927. Displacement : 490/715 tons. Complement, 27. Dimensions : $208\frac{1}{3}$ (*o.a.*) $\times 20\frac{1}{3} \times 10\frac{4}{5}$ feet. Torpedo Tubes : 4—21 inch (533 mm.). Guns : **1**—3 inch, **1**—M.G. Reported to carry 20 mines. Machinery : Atlas Diesels. H.P. 1,060/600 = 14/8 kts. Fuel : 20 tons. Radius of action : 1,500/75 miles. Diving limit, 40 fathoms.



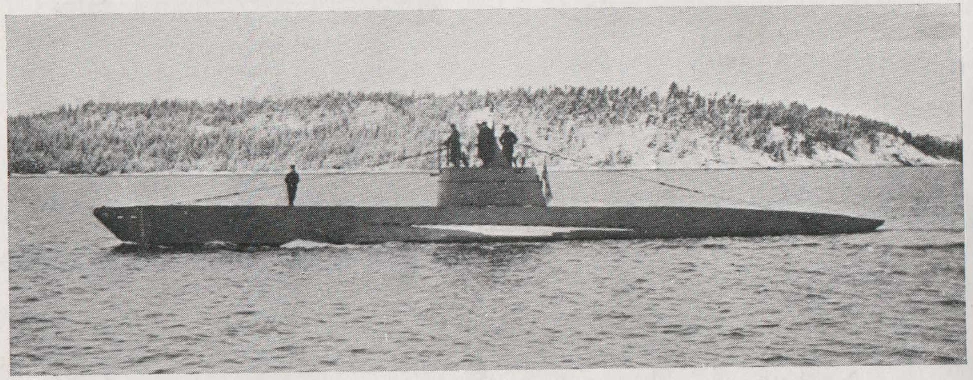
VESIKKO.



VETEHINEN *class*.

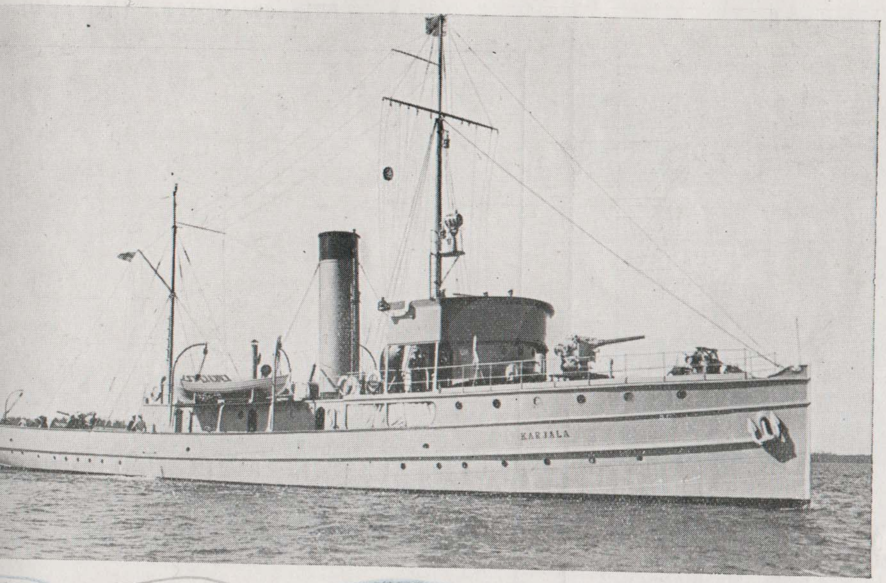


SAUKKO.



1932 *Official Photo.*

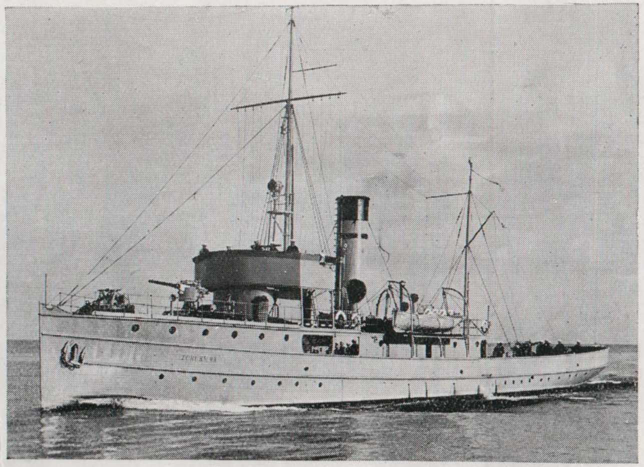
1 boat : **Saukko** (1930). Laid down 1929 by Hietalahden Laivatelakka of Helsinki. Displacement : 100/136 tons. Complement, 13. Dimensions : $106\frac{1}{2} \times 13\frac{1}{2} \times 10\frac{1}{2}$ feet. **1** M.G. **2**—18 inch torpedo tubes. **9** mines. Machinery : Germania Diesels. H.P. 200/150 = 9/6 kts. Radius of action, 375/45 miles.



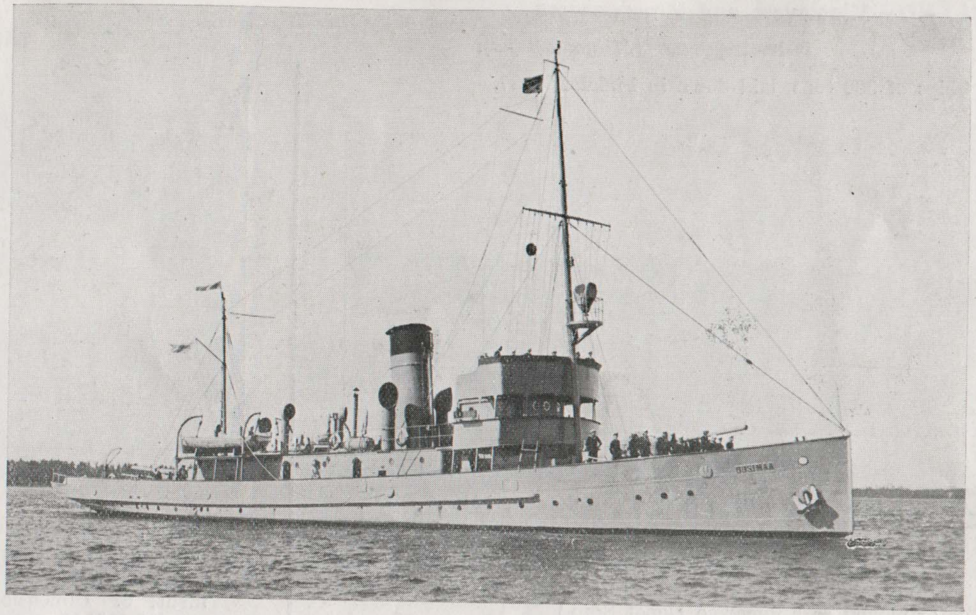
ALA. 1934 *Photo.*

**LA** (ex-Russian *Filin*, 1918), **TURUNMAA** (ex-Russian *Orlan*, 1916). Both built by nton A/B Turku. Ordered by late Imperial Russian Govermnent, 1914. Displacement : tons. Complement, 52. Length (*p.p.*) 154 feet (*o.a.*) 164 feet. Beam, 22½ feet. Designed draught, 9½ feet. Guns : **2**—3 inch, **3** M.G. Machinery : 2 sets triple expansion. Boilers : nand. Designed I.H.P. : 1,000 = 15 kts. Coal capacity : 60 tons.

orowski type" Patrol Vessels and generally sisters to Polish *K. Pilsudski* and *Gen. Haller*. *Turunmaa* loyed as Cadets' Training Ship.



TURUNMAA. (Note funnel band.) 1932 *Official Photo.*



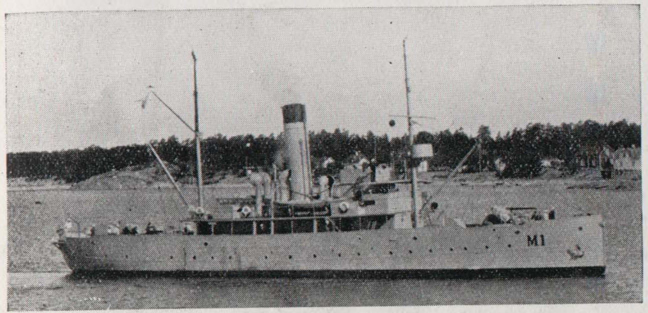
UUSIMAA. 1934 *Photo.*

**UUSIMAA** (ex-German *Beo*, 1917), **HÄMEENMAA** (ex-German *Wulf*, 1917). Built at Helsinki to order of late Imperial Russian Government. Displacement : 400 tons. Complement, 54. Dimensions : 160 (*p.p.*), 170½ (*o.a.*) × 24½ × 11 feet. Guns : **2**—3·9 inch, **1**—40 mm. AA., **3** M.G. Machinery : 2 sets triple expansion. Designed H.P. : 1,400 = 15 kts. Cylindrical boilers. Coal : 70 tons.

*Note.*—Sisters to Russian *Pionir* and *Kopchik*.

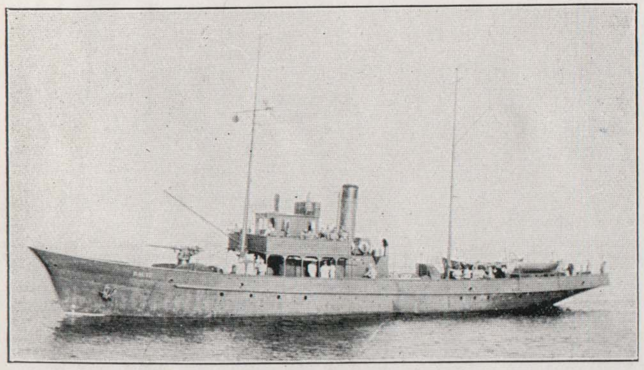
## Minelayers. (*Miinanlaskijat*).

2 Ships of 300 tons, laid down in Finland, 1937.



1934 *Photo.*

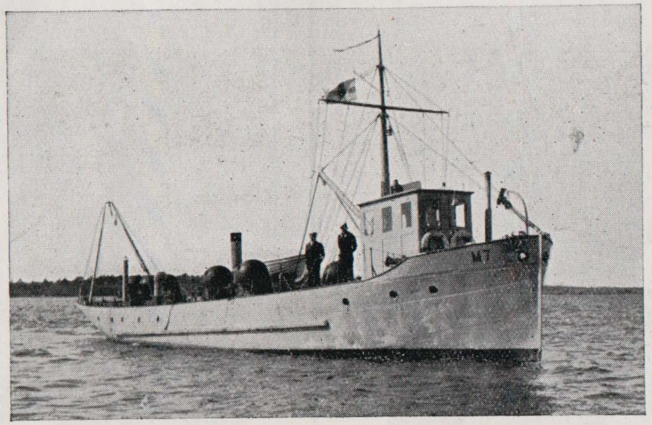
**LOUHI** (ex-*M*.1, ex-Russian *Voin*, Kolomna, 1917). Displacement: 640 tons. Complement, 46. Dimensions: 151 (*p.p.*) 164 (*o.a.*) × 26¼ × 8½ feet. Guns: **2**—3 inch, **2**—40 mm. AA., **3** M.G. Machinery: 1 set triple expansion. Designed H.P. 1,000 = 11 kts. Coal: 39 tons. Carries 140 mines. (Is also employed as Submarine Depot Ship.)



RAUTU. 1924 *Photo, Commdr. Raninen.*

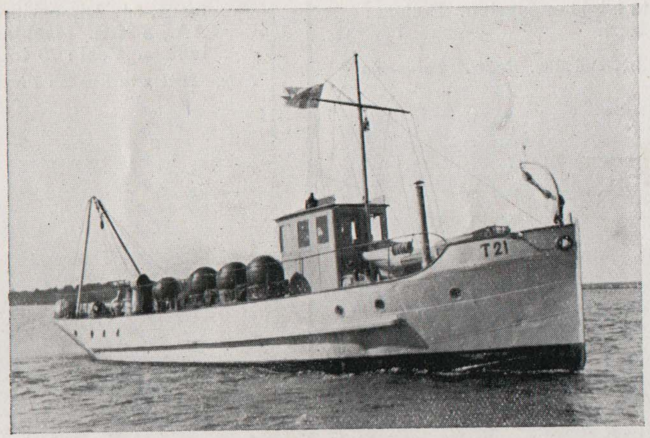
**VILPPULA** (ex-*T*.2, 1916) and **RAUTU** (ex-Russian *Murman*, 1917). Displacement: 268 tons. Complement, 35. Dimensions: 147⅔ (*o.a.*) × 20⅓ × 6½ feet. Guns: **1**—3 inch, **2** M.G. Machinery: 2 sets triple expansion. Designed H.P. 450 = 12 kts. Boilers: Yarrow and Schulz respectively. Oil: 19 tons. Can carry 30 mines.

## Minelayers.—*continued*.



POMMI (MIINA similar). 1933 *Photo.*

**POMMI** (ex-*M*. 7, 1916), **MIINA** (ex-*T*. 17, 1917). Built by Porin Konepaja O.Y., Pori. Displacement: 80 tons. Complement, 6. Dimensions: 65⅔ × 17 × 4 feet. Machinery: 2 sets of B.M.V. petrol motors. Designed I.H.P. 90 = 9 kts. Fuel: 1¼ ton.

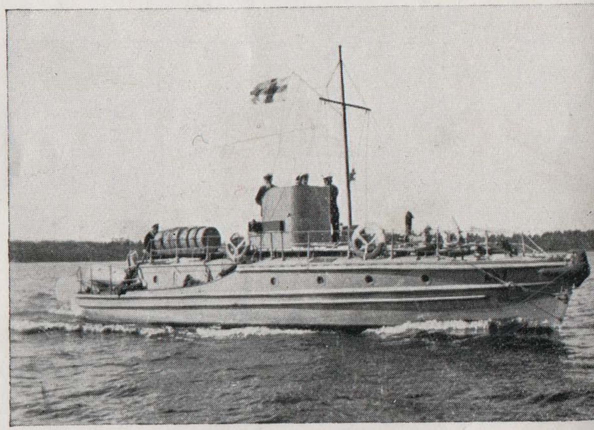


LOIMU. 1934 *Photo.*

**LOIMU** (ex-*T*. 21, 1915), **LIESKA** (ex-*T*. 16, 1916), **PAUKKU** (ex-*T*. 15, 1916). Built by Porin Konepaja O.Y., Pori. Displacement: 60 tons. Complement, 6. Dimensions: 62⅓ × 17 × 3⅔ feet. Machinery: 2 sets of B.M.V. petrol motors. Designed I.H.P. 60 = 7·5 kts. Fuel: 1¼ ton.

## Minesweepers. (*Raivaajat*).

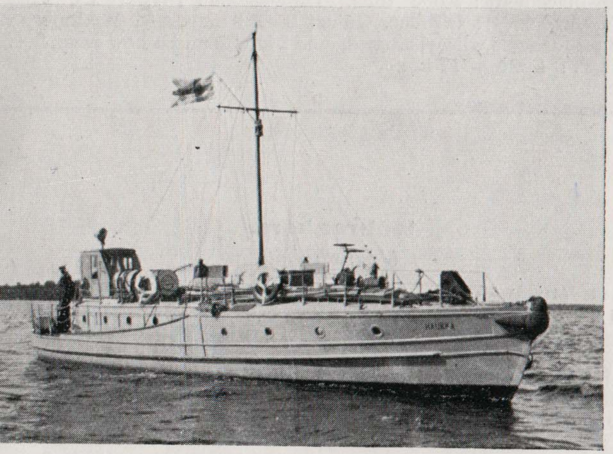
**AHVEN, KIISKI, MUIKKU, SÄRKI, KUO**
**LAHNA** (Turun Veneveistämö Yard, 1936–37). Disp
ment: 17 tons. Complement: 8. Dimensions: 56⅓ ×
4¼ feet. H.P.: 60 = 10·5 kts.



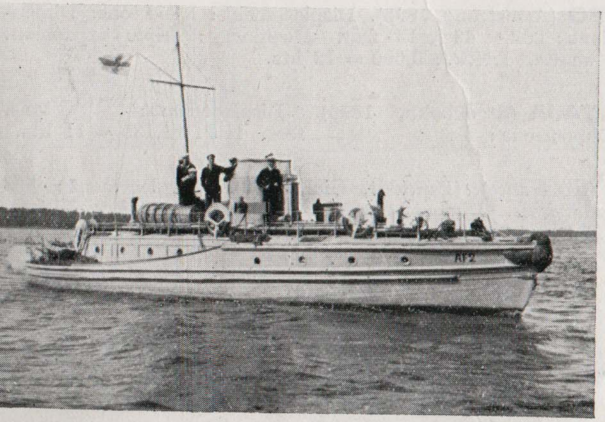
A.37. (*for description, see following column*).

## Minesweepers

(*continued*).



AUKKA. 1934 *Photo.*

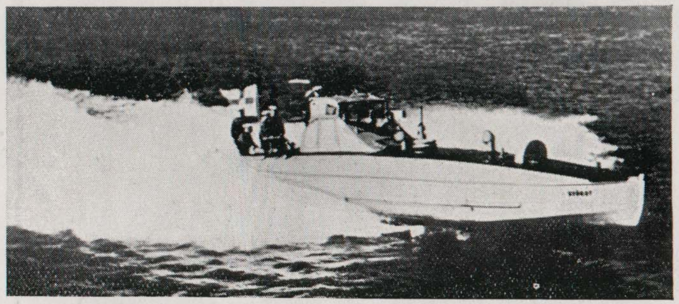


A.F. 2 1934 *Photo.*

oats : **BVA., BVD., A.37, A.38, A.40, A.42, A.43, A.45, B.3, AF.2, HAUKKA.** Displacement: *BVA.*—*A.*45, 9 tons; *B.*3, 18 tons; *AF.*2, 25 tons; *Haukka*, 12 tons. Complement, 6. Dimensions: 53 × 11⅘ × 4 feet (first 8). Engines: Petrol motor. Designed I.H.P.: 45–60 = 8–9·5 kts.

## Motor Torpedo Boats.

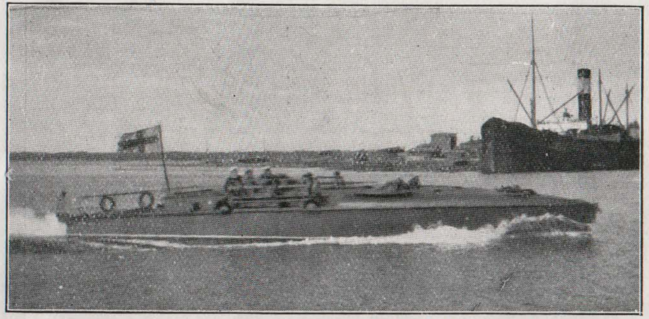
(*Moottoritorpedoveneet.*)



SYÖKSY. 1937.

4 boats : ***Syöksy*** (ex-*M.T.V.* 4), ***Nuoli*** (ex-*M .T.V.* 5), ***Vinha*** (ex-*M.T.V.* 6), and ***Raju*** (ex-*M.T.V.* 7). *Syöksy* and *Nuoli* built 1928 by Thornycroft, *Vinha* 1929 by Turun Veneveistämö, and *Raju* 1929 by Porvoon Veneveistämö. Displacement: 12 tons. Complement, 7. Dimensions: 55 × 11 × 3¼ feet. Guns: 2 Lewis. Torpedoes: 2—17·7 inch. 2 D.C. I.H.P. 750 = 40 kts.

1 boat : ***Isku*** (ex-*M.T.V.* 3). Built by Porvoon Veneveistämö in 1926. Displacement: 11 tons. Dimensions: 54 × 11 × 3⅔ feet. 2 M.G. Torpedoes: 2—17·7 inch, carried in dropping gears. Machinery: 2 sets Fiat motors. I.H.P. 650 = 31 kts.

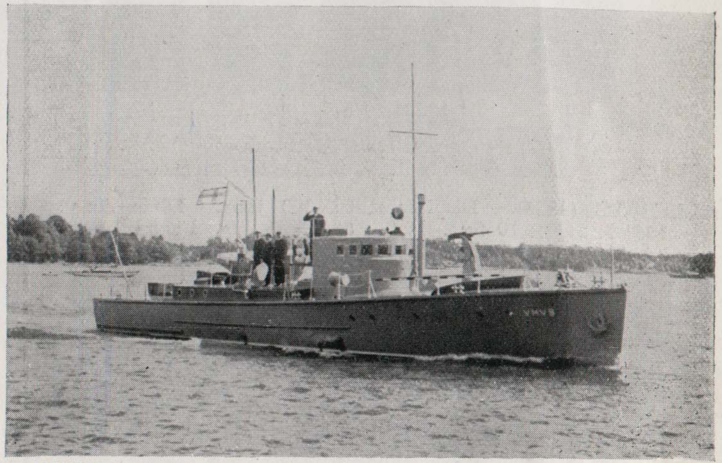


1924 *Photo, Commdr. Raninen.*

2 boats : ***Sisu*** (ex-*M.T.V.*1) ***Hurja*** ex-*M.T.V.* 2, (ex-*M.A.S.* 220, 221). Built for Royal Italian Navy by Flli. Orlando in 1916 and purchased, 1920. Displacement: 13 tons. Complement, 7. Dimensions: 53 × 9⅕ × 4 feet. Guns: 2 M.G. on high angle mounts. Torpedoes: 2—17·7 inch (450 mm.). Machinery: 2 sets Isotta Fraschini motors. I.H.P. 500 = 26 kts.

## Patrol Boats.

(*Vartiomoottoriveneet.*)



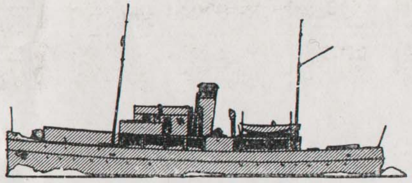
VMV. 9 1935.

**VMV. 1, 2, ~~3~~, 4, 5, 6** (1930–31). **VMV. 8-17** (1935).
Guns: 1—20 mm. Machinery: Semi-Diesel. H.P. 1220 = 25 kts.

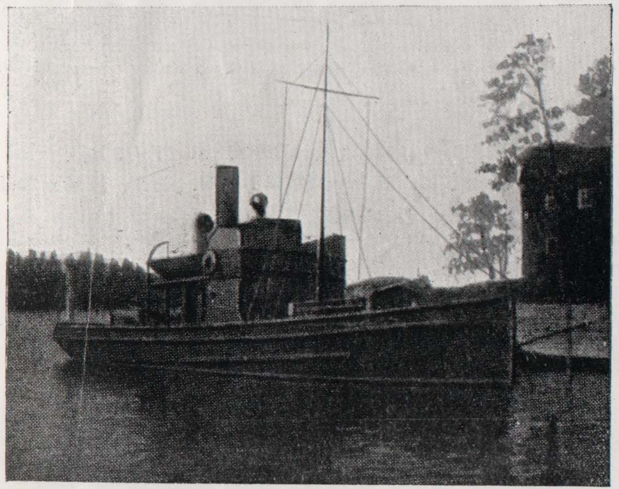
[illegible] погранохр.

## Gunboats.

(*On Lake Ladoga*)



**AALLOKAS** (1935). Displacement: 300 tons. Dimensions: 108¾ × 24½ × 10 feet. H.P.: 500 = kts. Fitted for ice breaking and used as Fishery Protection Vessel.



AUNUS. 1934 *Photo.*

**AUNUS** (Vulcan Yard, Turku, 1900). Displacement: 100 tons. Complement, 21. Dimensions: 83⅓ × 19⅓ × 7 feet. Guns: 2—57 mm., 2 M.G. Machinery: 2 sets compound. Cylindrical Boiler. I.H.P. 260 = 10 kts. Coal: 12 tons.

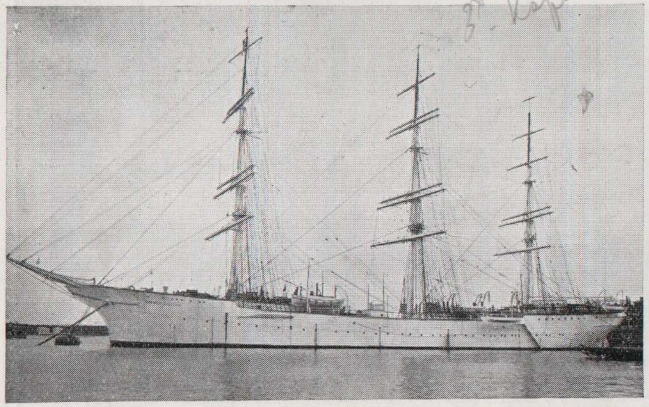
**YRJÖ** (1895). Displacement: 290 tons. Complement, 19. Dimensions: 95 × 20 × 8 feet. 1 M.G. Machinery: 1 set compound. Cylindrical Boiler. I.H.P. 200 = 8 kts. Coal: 11 tons.

**VAKAVA.** Particulars wanted.

## Training Ship.

(*Koululaiva.*)

[illegible]



1932 *Official Photo.*

**SUOMEN JOUTSEN** (ex-*Oldenburg*) (St. Nazaire, 1902). Purchased by Finnish Navy in 1931. Displacement: 3,200 tons. Complement, 27 + 60 cadets. Dimensions: 316¼ × 40⅔ × 16½ feet. Machinery: 2 auxiliary Diesels. H.P. 400 = 6 kts. Fuel: 40 tons.

## Presidential Yacht.

(Appearance as Silhouette).

**AURA** (ex-*Seagull*). (Göteborg, 1884). (Rebuilt 1929–30). 563 tons *gross.* Dimensions: 190½ × 25½ × 17½ feet. Machinery: Compound. I.H.P.: 574 = 12 kts. 2 boilers. Complement: 16.

## Salvage Vessel.

(*Pelastuslaiva*).

(*Photo wanted.*)

**MURSU** (ex-*Stannum*, Kiel, 1902). 615 tons gross. Dimensions: 117¼ (*p.p.*), 131 (*o.a.*) × 41 × 15 feet. I.H.P. 500 = 8 kts. Purchased 1935 for re-equipment as a salvage vessel. Is fitted with special lifting gear for raising sunken submarines.

## Submarine Depot Ship and Icebreaker.

(*For appearance, see silhouette.*)

Laid down 1937 by Sandvikens Co. for completion Dec., Displacement: 3,000 tons. Dimensions: 194¾ (*w.l.*), (*o.a.*) × 45½ × 16¾ feet. Guns: 2—3·9 inch, AA. Machi 3 sets Diesels with electric drive. 2 shafts and a bow prop H.P.: 4,000 = 17 kts.

## Icebreakers.

(*Jäänsärkijät*)

**OTSO** (1936). Dimensions: 134½ × 35½ × 15¾ feet. 1,800 = 13 kts. Oil fuel: 60 tons.

**JÄÄKARHU** (Smit, Rotterdam, 1926). Displacement: tons. Dimensions: 240 × 63 × — feet. Machinery: T expansion. 3 shafts. I.H.P.: 9,000 = 18 kts. Oil fuel

**VOIMA** (Sandvikens, 1917). Displacement: 2,070 tons. Di sions: 210⅔ × 46½ × — feet. Machinery: Triple expa 1 shaft. I.H.P.: 3,600 = 14 kts.

**TARMO** (ex-*Sampo II*), (Armstrong, 1907). Displace 2,300 tons. Dimensions: 208½ × 47 × — feet. Machi Triple expansion. I.H.P.: 3,850 = 14 kts.

**SAMPO** (Armstrong, 1898). Displacement: 1,850 tons. D sions: 202 × 43 × 15 feet. Machinery: Triple expa 2 shafts. I.H.P.: 3,000 = 12 kts.

**MURTAJA** (Stockholm, 1890). Displacement: Dimensions: × × feet. H.P.: 1,130 = 11

**APU** (ex-*Avance*), (Howaldt, Kiel, 1899). Displacement: tons *gross.* Dimensions: 136 (*pp.*), 140⅓ × 35½ × — I.H.P.: 1,385 = 10 kts.

# FRANCE.

f *Marine*—Monsieur César Campinchi.

aché (*London*)—Capitaine de Frégate Comte M.A. du Tour.

al *Attaché*—Lieut. de Vaisseau L. Bedin.

## Navy Estimates.

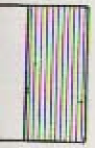
1937: Fres. 4,460,000,000. 1938: Fres. 4,583,000,000.

## Personnel.

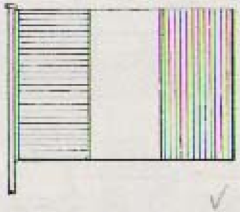
4,000 Officers, 65,500 Men. (Estimates for 1938.)

## Flags.

l *Flag:* Initials of the President worked in Gold letters on central (white) stripe of the , the letters and their dimensions being chosen by M. le Président.

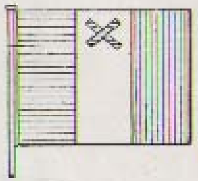


. in Chief,
fet
ne de
ons.



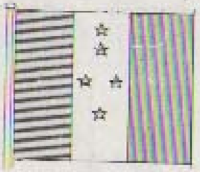
Ensign & Jack
(Minister of Marine).

X-7

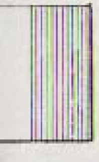


Maréchal de France.

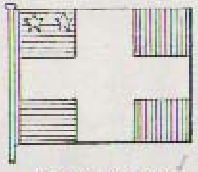
(*President's flag has initials in centre.*)



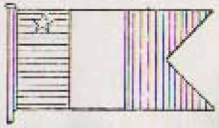
Vice-Amiral
Chef d' Etat Major
Général
ou Inspecteur Général
des Forces Maritimes.



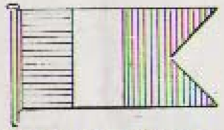
e-Amiraux,
de Division
Officielle,
d'un Com-
en Chef.



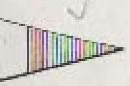
Contre-Amiral
et Général de Brigade
en Mission Officielle.



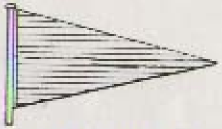
Capitaine de Vaisseau
Chef de Division
(independante ou en
sous ordre).



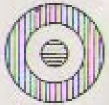
Capitaine de Vaisseau
Comm't un groupe de
bâtiments, ou
Major-Général
commandant la Marine.



e de Frégate
vette, Comm't
de bâtiments
dant la Marine.



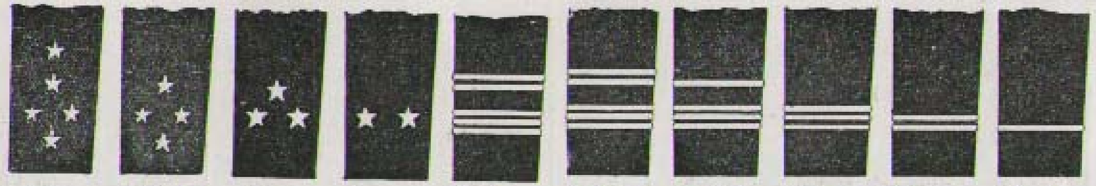
Comm't supérieur
temporaire de tout
grade.



*hydravions*

▥ *Rouge* ☐ *Blanc* ▤ *Bleu*

## Uniforms.



(*Gold stripe and 2 light blue patches*)

| V.A. Chief of Staff. | V.A. in Command of Forces. | Vice-Amiral. | Contre-Amiral. | Capitaine de vaisseau. | Capitaine de frégate. | Capitaine de corvette. | Lieutenant de vaisseau. | Enseigne. | Enseigne 2e classe. | Aspirant |
|---|---|---|---|---|---|---|---|---|---|---|
| Corresponding to British } | | *Vice-Ad.* | *Rear-Ad.* | *Captain.* | *Commander.* | *Lieut.-Comm'der.* | *Lieut.* | *Lieut.* (junior.) | *Sub-Lieut.* | *Midshipman* |

Capitaine de Vaisseau, Chef de Division, has one star above the stripes.
Only three of the Capitaine de frégate's stripes are gold: the second and fourth are silver.
Epaulettes with parade uniform are of the usual sort, *except* that—
A Vice-Admiral's epaulettes have the usual anchor and 3 stars.
A Rear-Admiral's " " " " 2 "
Caps are similar to British Navy in shape but badge differs, being more like Italian and there are stripes right round corresponding to rank. The cocked hat carries the tri-colour.

## Torpedoes. (Details official).

Whitehead pattern, made at Toulon Torpedo Factory; also at St. Tropez, where Whitehead marks are built by the Société Française de Torpilles Whitehead.

| Date | French Designation. | Diameter. | Length. | Charge. | Pressure in chamber. | *Maximum range.* |
|---|---|---|---|---|---|---|
| | | inches. | feet. ins. | lbs. | lbs. per sq. in. | |
| 1919 | 55 c/m (D) | 21·7 | 27′ ″ | 551 | 2420 | 15,000 |
| 1919 | 55 c/m (V) | 21·7 | 21′ 7″ | 551 | 2200 | 4375 |
| 1912 | 45 c/m | 18 | 22′ 2″ | 317 | 2420 | 8000 |
| 1912 | 40 c/m | 15·7 | | | | |

*Notes.*—All fitted with gyros There are also 1923 and 1924 models of the 55 *c/m* torpedo, with ranges up to 20,000.

## Mines.

Present types understood to include mainly 120 and 200 kilo. types for laying by S/M; 360 kilo Sautter-Harlé spherical and 700-kilo Breguet spherical types. Paravanes British marks.

## Catapults.

Of compressed air type in all ships prior to *Algérie*. In that ship and all of later date explosive propellant is used.

## General Notes.

COLOUR OF SHIPS: *Surface ships.*—Light grey
*Submarines.*—Sea green or light grey.

EFFECTIVE LIFE OF SHIPS: Fixed in 1936 as—Battleships, 26 years; Aircraft Carriers, 20 years; Cruisers, 20 years; Torpedo Craft, 16 years; Submarines, 13 years.—All reckoned from date of first commissioning for trials.

Washington Treaty standard has been adopted for regulation of displacements.

## Mercantile Marine.

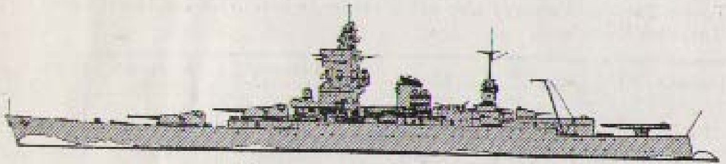
(From "Lloyd's Register," 1937 figures.)
1,366 vessels of 2,870,249 gross tonnage.

## NAVAL ORDNANCE.

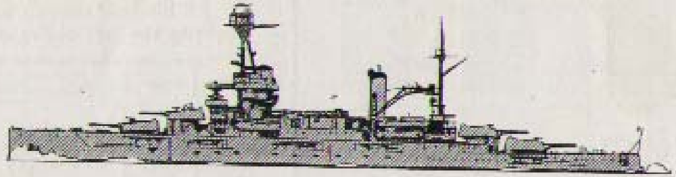
(There are also a 15 inch (*Richelieu* class), 1932–33 models of 5·5, 5·1 and 3·9 inch, and a 3 inch AA. of 35 cal.)

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calibres (inches) | **13·4** | **13** | **12** | **8** | **6·1** | **6** | **5·5** | | | **5·1** | | **3·9** | **3·5** | **3** | **1·5** |
| Calibres (mm.) | 340 | 330 | 305 | 203 | 155 | 152 | 138 | | | 130 | | 100 | 90 | 75 | 37 |
| Modèle | 1912 | 1933 | 1906–10 | 1924 | 1920 | 1930 | 1929 | 1923 | 1910 | 1924 | 1919 | 1917 | 1926 | 1924 | 1925 |
| Longueur (en calibres) | 45 | 52 | 45 | 50 | 50 | 55 | 50 | 40 | 55 | 40 | 40 | 45 | 50 | 50 | 50 |
| Poids du canon (Kgs.) | 66,280 | .. | 54,020 | 20,716 | 8530 | 8000 | .. | 4113 | 5300 | 3875 | 4392 | 1565 | 1600 | 1095 | 158 |
| Poids du projectile (Kgs.) | 554 | 540 | 432 | 123 | 56 | 54 | .. | 40 | 39 | 32 | 32 | 14 | 9·5 | 6 | 0·75 |
| Poids de la charge (Kgs.) | 151 | .. | 126 | 47 | 19·6 | 17 | .. | 9 | 11 | 8 | 8 | 4 | 3 | 2 | 0·25 |
| Pression Kg./cm. | 2800 | .. | 2400 | 2750 | 3050 | 3200 | .. | 2500 | 2500 | 2420 | 2420 | 2300 | 3200 | 2560 | 2400 |
| Vitesse initiale m/sec. | 794 | 1061 | 783 | 850 | 850 | 870 | 860 | 700 | 830 | 734 | 734 | 720 | 850 | 850 | 850 |

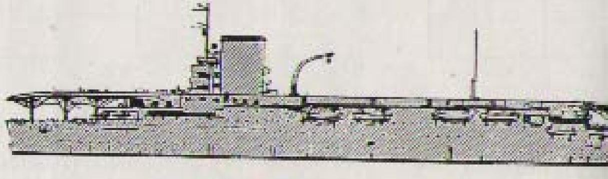
### Battleships and Aircraft Carriers



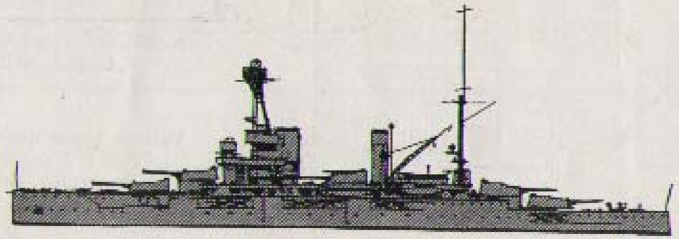
Dunkerque. Strasbourg.



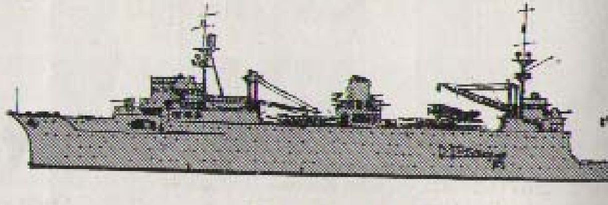
Lorraine.



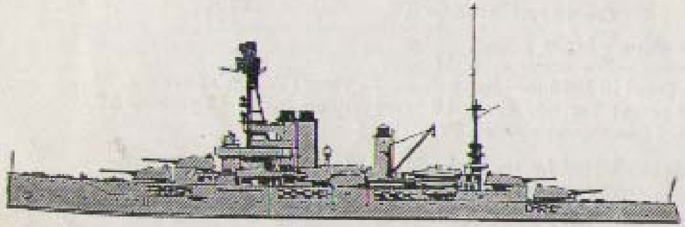
Béarn. Funnel on starboard side.



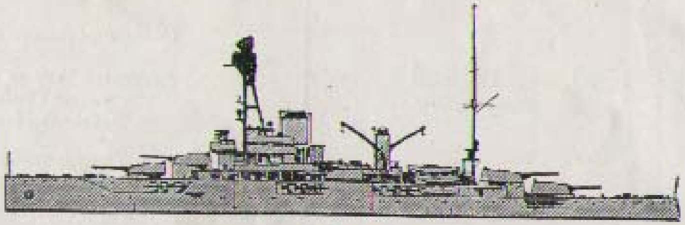
Bretagne. Provence.



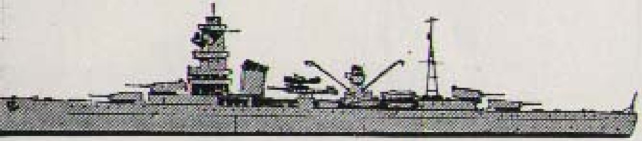
Commdt. Teste.

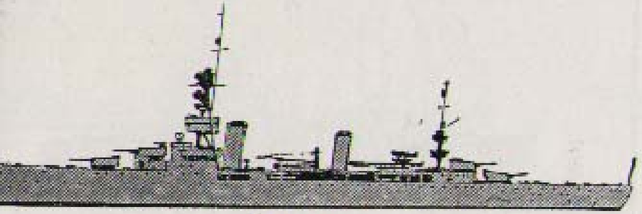


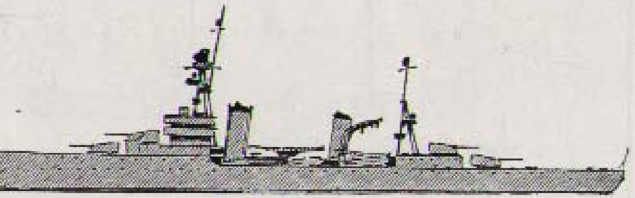
Paris.

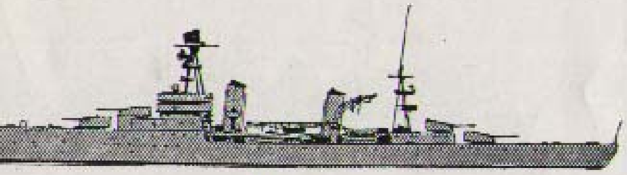


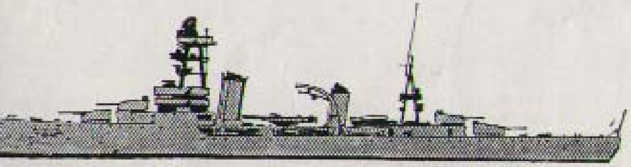
Courbet.

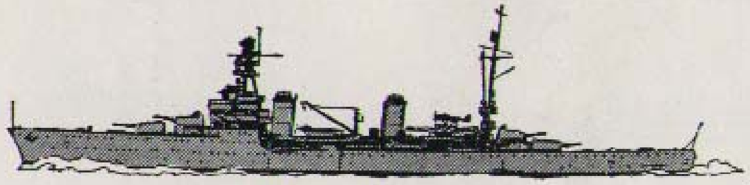

Algérie.

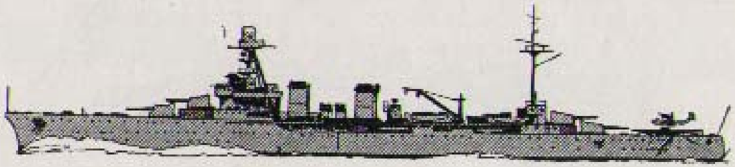

Suffren.

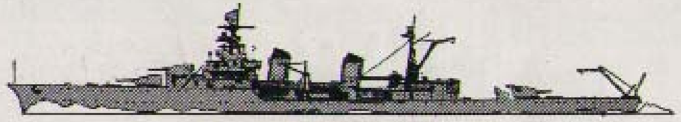

Colbert.

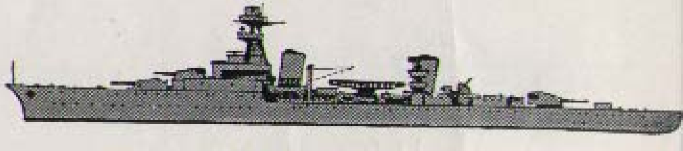

Dupleix.

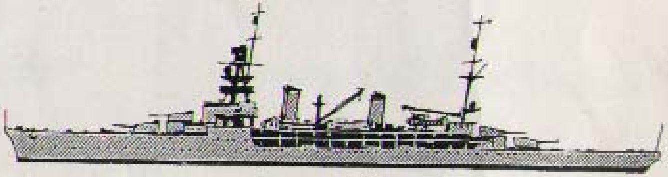

Foch.

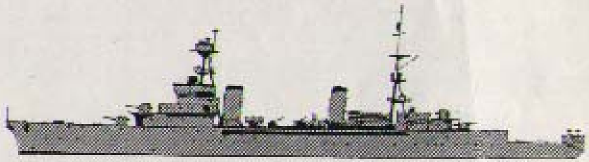

Duquesne, Tourville.

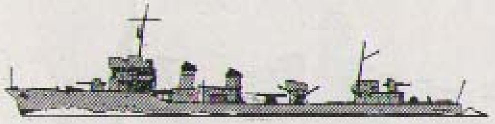

Duguay-Trouin *class*.


La Galissonnière *class*.

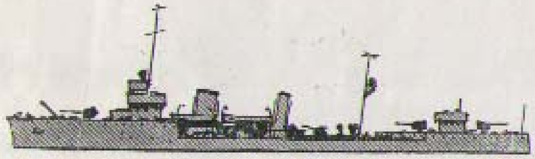

Emile Bertin.


Jeanne D'Arc.

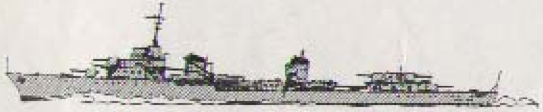

Pluton.



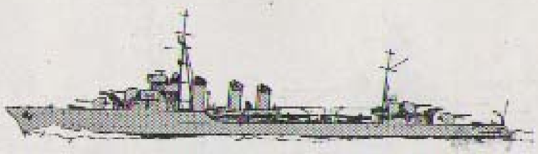
La Pomone *class.*



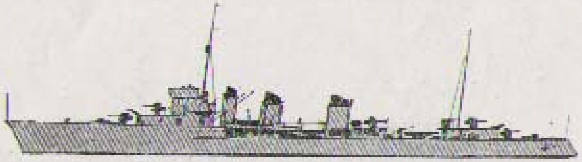
Aventurier. Intrépide.



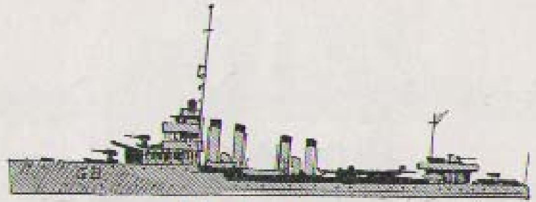
Le Fantasque *class.*



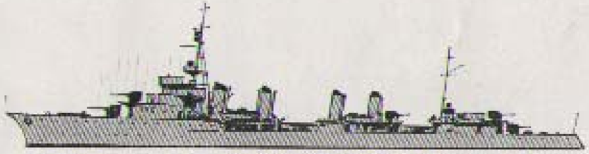
Simoun *and* Adroit *classes.*



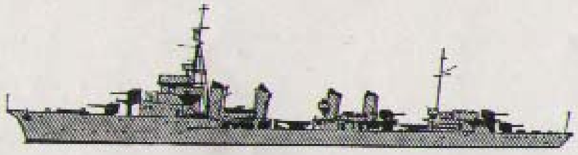
Chacal *class.*



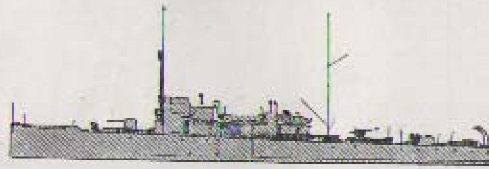
Ens. Gabolde.



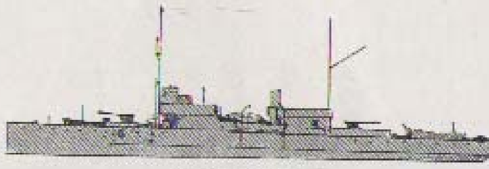
Guépard *type.*



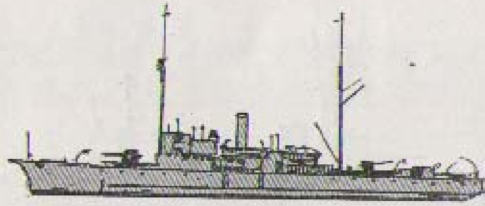
Cassard *type.*



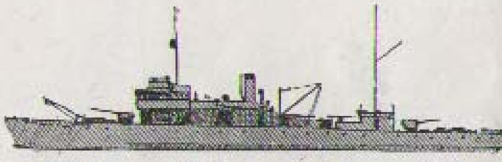
Diligente.



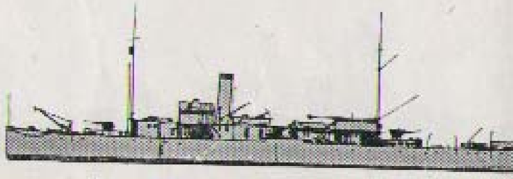
Conquérante.
(Engageante similiar, but Yacht Bow).



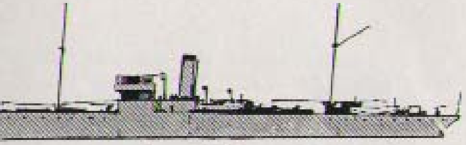
Luronne.



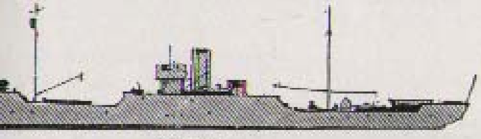
Meuse. Oise. Somme. Yser.



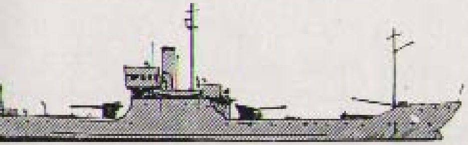
Suippe. Ancre.



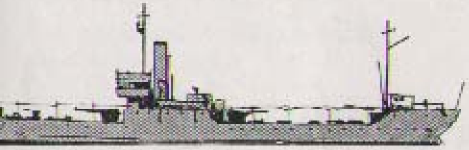
Ville d'Ys.



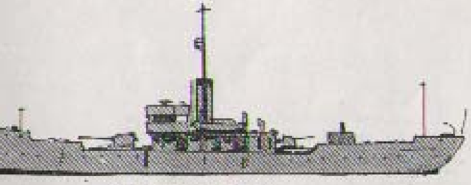
Ailette.



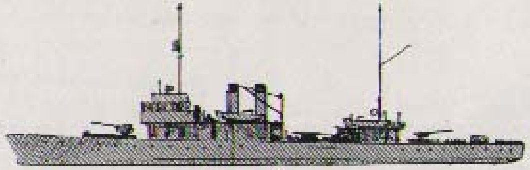
Ypres *class*.



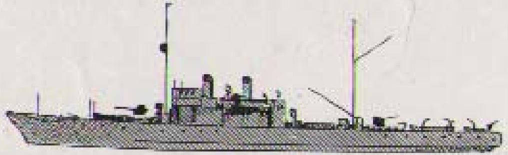
Arras *class*.



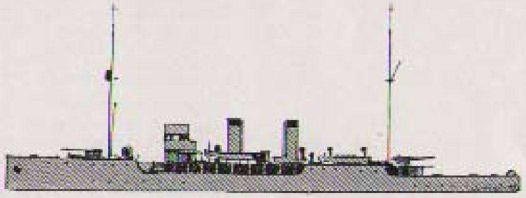
Dubourdieu *class*.



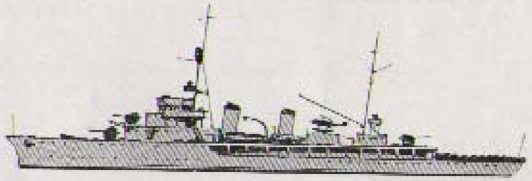
Aisne. Marne.



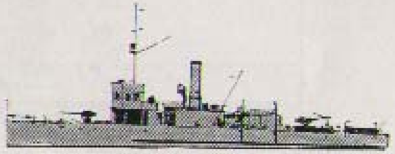
Ardent *type*.



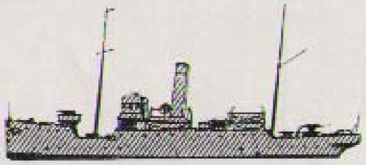
Altair.



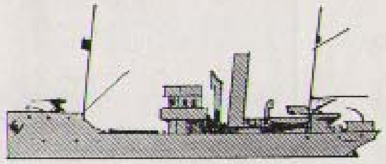
Bougainville *class*.



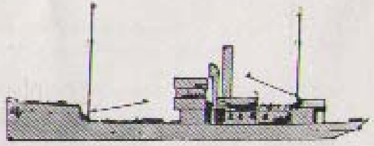
Granit *class*.



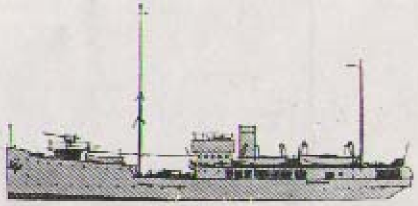
Quentin Roosevelt.



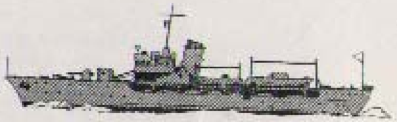
Fauvette II.



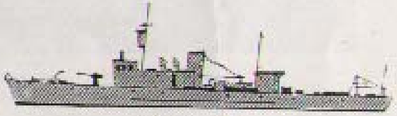
Astrolabe *class*.



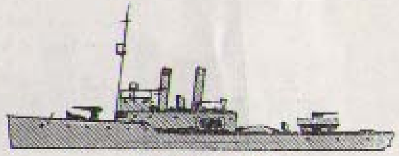
La Pérouse.



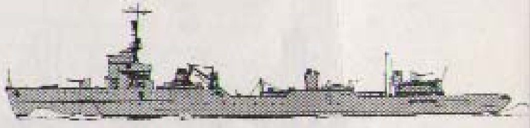
Amiral Mouchez.



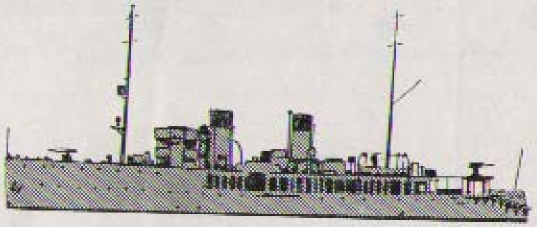
CH 1—4.



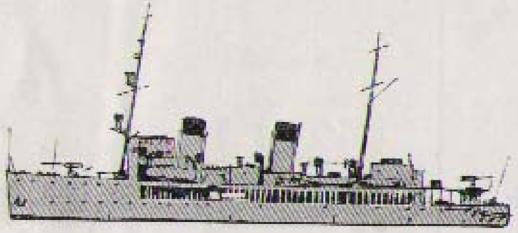
CH 106—115.



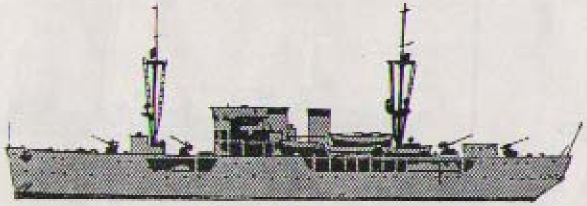
Le Gladiateur.



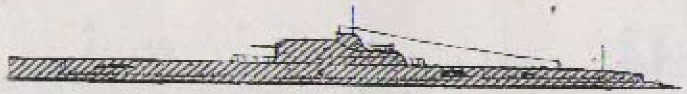
Castor.



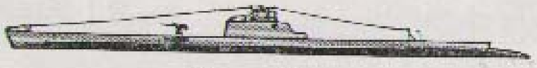
Pollux.



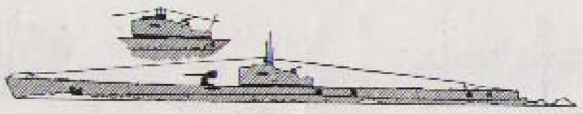
Jules Verne.



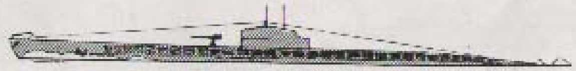
Surcouf.



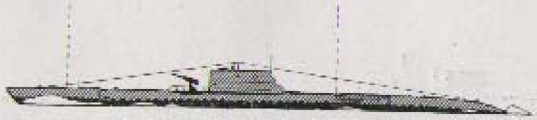
Saphir *class*.



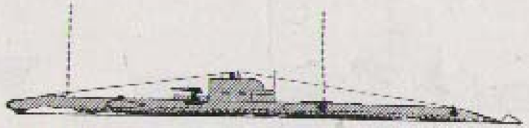
Pascal *type*.
(Redoutable, Vengeur, as part sketch.)



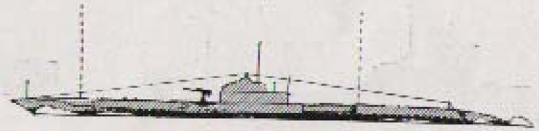
Requin *class*.



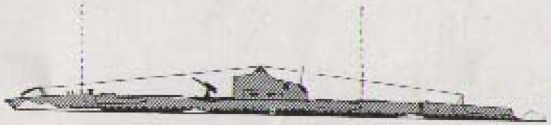
Sirène *group*.



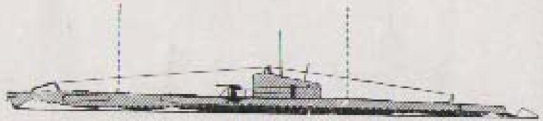
Circé *group*.



Ariane *group*.



Diane *class*, (A).



Diane *class*. (B).

# DISPOSITION OF NAVAL FORCES. SEPT., 1937.

(Furnished officially to "Fighting Ships" by courtesy of the Ministry of Marine.)

## es Navales Métropolitaines.

### ESCADRE DE LA MÉDITERRANÉE

**mière escadre légère:**

*Division de croiseurs :*
Algérie, Foch, Dupleix, Colbert
*Division de croiseurs :*
Duquesne, Suffren, Tourville.
*Division de croiseurs :*
Marseillaise, La Galissonnière, Jean de Vienne
*ansport d'aviation :*
Commandant Teste

**isième escadre légère:**

*Division de contre-torpilleurs :*
Tartu, Vauquelin, Le Chevalier Paul
*Division de contre-torpilleurs :*
Gerfaut, Albatros, Vautour
*Division de contre-torpilleurs :*
Maillé-Brézé, Kersaint, Cassard
*Division de contre-torpilleurs :*
Guépard, Verdun, Valmy
*rs rang :*
Aigle, Vauban

**mière Flottille de torpilleurs:**

*Division de Torpilleurs :*
La Palme, Le Mars, Forbin
*Division de Torpilleurs :*
Le Fortuné, La Railleuse, Simoun, Tempête

**mière Flottille de sous-marins:**

Lion
*us-Marins de 1ère classe :*
Pégase, Monge, Phénix, L'Espoir, Actéon, Protée
*us-Marins de 2ème classe :*
Vénus, Iris, Vestale, Sultane, Aréthuse, Atalante
*ain d'Escadre :*
Le Gladiateur, Durance, Aube

### DIVISION D'INSTRUCTION

*Division de ligne :*
Paris, Courbet
*Division de croiseurs :*
Duguay-Trouin, Primauguet
*n endivisionné :*
Pluton
*Division de Contre-Torpilleurs :*
Tigre, Panthère, Lynx
*iso :*
Yser
*hasseurs de 150 tonnes.*
*liments écoles :*
L'Océan, Condorcet

### ESCADRE DE L'ATLANTIQUE

**ments de ligne:**

*rs rang :*
Dunkerque
*Division de ligne :*
Provence, Lorraine, Bretagne
*rte-avions:*
Béarn

**2ème Escadre légère:**

Emile Bertin
6e *Division de contre-torpilleurs :*
Milan, Epervier
8e *Division de contre-torpilleurs :*
L'Indomptable, Le Triomphant, Le Malin
10e *Division de contre-torpilleurs :*
Le Fantasque, Le Terrible, L'Audacieux

**2ème Flottille de torpilleurs:**

Bison
2e *Division de torpilleurs :*
Fougueux, Frondeur, Basque
4e *Division de torpilleurs :*
Bourrasque, Orage, Ouragan
5e *Division de torpilleurs :*
Brestois, Boulonnais, Foudroyant
6e *Division de torpilleurs :*
Cyclone, Siroco, Mistral
7e *Division de torpilleurs :*
L'Alcyon, Tornade, Typhon
8e *Division de torpilleurs :*
Bordelais, Tramontane, Trombe
*Hors rang :*
L'Adroit

**2ème Flottille de sous-marins:**

Jules Verne, Surcouf
*Sous-Marins de 2e classe :*
Méduse, Amphitrite, Orphée, Antiope, Sibylle, Amazone, Minerve, Junon
*Sous-Marins de 1e classe :*
Conquérant, Casablanca, Sfax, Agosta, Persée, Poncelet, Achille, Pasteur

### FORCES NAVALES D'OUTRE-MER

**Division Navale du Levant**

D'Iberville

**Forces Navales D'Extrême-Orient:**

*Croiseur de 2e classe :*
Lamotte-Picquet
*Avisos coloniaux :*
Dumont d'Urville, Savorgnan de Brazza, Amiral Charner
*Aviso :*
Tahure
*Flottille du Yang-Tsé-Kiang :*
Francis-Garnier, Doudart de Lagrée, Balny
*Station du Si-Kiang :*
Argus

*Ecole d'application :*
Jeanne d'Arc
*Station de la Manche, de la Mer du Nord et d'Islande :*
Ailette, Quentin Roosevelt
*Station Navale de Terre-Neuve :*
Ville d'Ys
*Station Navale de l'Atlantique :*
d'Entrecasteaux
*Station Navale de l'Océan Indien :*
Bougainville
*Station Navale du Pacifique :*
Rigault de Genouilly

### MARINE AUX COLONIES

**Marine en Indochine:**

*Aviso :*
Marne
*Canonnières fluviales :*
Avalanche, Commandant Bourdais, Vigilante, Mytho, Tourane
*Mission hydrographique :*
Altair, Octant, Astrolabe, La Pérouse

**Marine à Tahiti:**

*Voilier :*
Zélée

### PREMIÈRE RÉGION MARITIME

**Services de la région:**

*Mission hydrographique du Cotentin :*
Gaston Rivier

**Majorité générale:**

*Centre des sous-marins de la 1e région :*
Eurydice, Danaé, Diane, Ariane, La Psyché, Oréade

**Secteur de Cherbourg—Défense littorale:**

*Mouilleur de mines :*
Pollux
*Vedettes rapides :*
V.T.B. 9 V.T.B. 10
*ainsi que :*
Ch. 51, 74, 95

### DEUXIÈME RÉGION MARITIME

**Services de la région:**

*Mission Hydrographique de Boulogne :*
Amiral Mouchez
*Mission Hydrographique de l'Atlantique*
Dubourdieu
*Transports :*
Jeanne et Geneviève, Rhone
*École Navale & des Ingénieurs Mécaniciens*
Jaguar, Léopard, Chacal, Vauquois, Étourdi, Conquérante, L'Étoile, La Belle Poule Coucy
*École des Apprentis Marins :*
Épinal, Railleur, Mesange
*École de pilotage :*
Ancre, Mutin

**Majorité générale:**

Laffaux, Oise, Meuse, Arras, Dordogne, Ruisseau, Torrent, Surveillante

**Secteur de Brest—Défense littorale:**

Vauquois, Diligente, C. 98
*Centre de dragage :*
Aisne, Somme

**Secteur de Lorient:**

*École des Mécaniciens :*
Enseigne Henry, Audacieuse, Luronne
*Défense littorale :*
Chimère, Ch. 107, 106, 115, Reims

**Secteur de Rochefort:**

*Station de la Bidassoa :*
Chasseur 2

### TROISIÈME RÉGION MARITIME

**Services de la région:**

*Centre d'études*
Les Éparges, Primevère

**Majorité générale:**

Aventurier, Enseigne Gabolde, Intrepide, Duchaffault, Rance, Nancy, Calais, Lassigny, Du Couëdic, Amiens, Gracieuse, Tapageuse, Suippe, Dedaigneuse
*Transports :*
Coëtlogon, Forfait, Champlain, Allier

**Secteur de Toulon:**

13e *Division de Torpilleurs :*
Baliste, Bombarde, La Bayonnaise, La Poursuivante
*Centre des sous-marins de Toulon :*
Le Tonnant, Sirène, Galatée, Naïade, Nymphe, Héros, Glorieux, Acheron, Fresnel, Argonaute, Thetis, Doris, Circé, Calypso, Orion, Ondine
*Défense littorale :*
Hamelin, Granit, Meulière, Torp. 349, Fauvette II

### QUATRIÈME RÉGION MARITIME

**Services de la région:**

*Mission hydrographique :*
Ypres, Estafette, Sentinelle

**Secteur de Bizerte:**

12e *Division de Torpilleurs :*
La Pomone, La Flore, L'Iphigenie, La Melpomène
*Mouilleur de mines :*
Castor
*Flottille de sous-marins de la 4ème Région :*
Souffleur, Morse, Caïman, Marsouin, Dauphin, Espadon, Narval, Phoque
*Défense littorale :*
Engageante, Quartz

### DIVERS

*Transports pétroliers :*
Garonne, Le Loing, Le Mékong, Le Niger, Elorn, Var, Nivôse
*Transports du littoral :*
Aude, Golo

Кор

| | Building | Built | 48 46 (49) |
|---|---|---|---|
| 6+3 *Battleships.* | | | |
| Richelieu | 2 | — | 1(1) 2 |
| Dunkerque | 1 | 1 | (1) |
| Provence | — | 3 | – |
| Courbet | — | 2 | 1 |
| | | | 4 |
| 1 *Aircraft Carrier.* | | | |
| Béarn | — | 1 | 1 |
| 7 *Heavy Cruisers.* | | | |
| Algérie | — | 1 | – |
| Tourville | — | 6 | 3 |
| 11+2 *Cruisers.* | | | |
| De Grasse | 2 | — | (1) |
| La Galissonnière | — | 6 | 4 |
| E. Bertin | — | 1 | 1 |
| Jeanne D' Arc | — | 1 | 1 |
| Duguay-Trouin | — | 3 | 1 |
| | | | 7 |
| 1 *Cruiser Minelayer.* | | | |
| Pluton | — | 1 | – |
| 31+1 *Flotilla Leaders.* | | | |
| Mogador | 1 | 1 | – |
| Le Fantasque | — | 6 | 4 |
| Cassard | — | 6 | – |
| Aigle | — | 6 | – |
| Guépard | — | 6 | – |
| Jaguar | — | 6 | – |
| | | | 1 |
| | | | 10 |

[illegible] Regeb

| | Building | Built | |
|---|---|---|---|
| 29+15 *Destroyers.* | | | |
| Le Hardi | 11 | — | – |
| L'Agile | 4 | — | – |
| L'Adroit | — | 14 | |
| Simoun | — 9 | 12 | |
| Aventurier | — | 2 | |
| E. Gabolde | — | 1 | |
| [illegible] Algérie<br>L'Intrépide | | | 6 |
| 11+6 *Torpedo Boats.* | | | 9 |
| La Pomone | 4 | 8 | |
| Motor Type | 2 | 3 | |
| 75+16 *Submarines.* | | | |
| R. Morillot | 2 | — | |
| Surcouf | — | 1 | |
| Redoutable | 2 | 28 | |
| Requin | — | 9 | |
| Saphir | 1 | 6 | |
| Aurore | 9 | — | |
| Diane | 2 | 20 | |
| Sirène | — | 11 | |
| | | | 30 |
| 2 *Minelayers.* | | | |
| Castor | — | 2 | |
| 1 *Netlayer.* | | | |
| Le Gladiateur | — | 1 | |
| 1 *Seaplane Carrier.* | | | |
| Commandant Teste | — | 1 | |
| 8+4 *Aircraft Tenders.* | | | |
| Sans Souci | 4 | — | |
| Pétrel | — | 8 | |
| 2 *Training Ships.* | | | |
| L'Ocean, Condorcet | — | 2 | |

| | Build |
|---|---|
| 41+19 *Escort and Patrol Vessels.* | |
| Élan | 18 |
| Bougainville | 1 |
| Altair | — |
| Dubourdieu | — |
| Ailette | — |
| Arras | — |
| Aisne | — |
| Conquérante | — |
| Diligente | — |
| Audacieuse | — |
| 4 *Minesweepers.* | |
| Granit | — |
| 13+18 *Submarine Chasers.* | |
| CH 41—46 | 6 |
| CH 5—16 | 12 |
| CH 1—4 | — |
| CH 106—115 | — |
| C 25—C 98 | — |
| 9+1 *River Gunboats.* | |
| Jouffroy d'Abbans | 1 |
| F. Garnier | — |
| Argus | — |
| Balny | — |
| D. de Lagrée | — |
| Mytho | — |
| Avalanche | — |
| 6 *Fishery Patrol Vessels.* | — |
| 7+1 *Surveying Vessels* | 1 |
| 6+1 *Auxiliaries, Depot Ships, etc.* | 1 |
| 12+4 *Oilers* | 4 |

[illegible] в аренду и [illegible]
АВ-1 Colossus
Мн-1
ЭМ-8 (Немецкие)
ФР-6
Кор-7
Тщ-24
Охот пл-40

(RICHELIEU CLASS—2 SHIPS.)

## RICHELIEU JEAN BART

Displacement : 35,000 tons. Complement,

Length : 794 feet. Beam, 108¼ feet. Draught, 26½ feet (*mean*)

Guns :
8—15 inch
15—6 inch 9-152
12—3·9 inch, 60 cal., AA.
~~8—37 mm. AA.~~ 75-40
—13 mm. AA. 37-20

Aircraft :
4, with 2 catapults

Armour :
9"—16" Belt
8" Deck (upper and lower combined)
(Total weight of armour, 15,000 tons)

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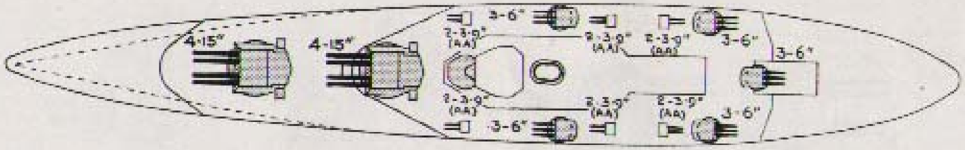
2) [illegible]

1) в строю
2) не в строю



Кр. Флот VI-49
Зенитное вооруж. Jean Bart
Зен. арт. - 24-100
28-57

Machinery : Geared turbines. H.P. : 160,000 = 30 kts. (More expected) Boilers : 6 Indret.

32,5

*General Notes.*—These ships are designed to form a homogeneous squadron with the *Dunkerque* and *Strasbourg*. Percentage of displacement devoted to armour is higher even than in those two ships. *Jean Bart* built in a special dry dock in Loire yard.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Compl.* |
|---|---|---|---|---|
| *Richelieu* | Brest | Loire | 22/10/35 | *To be* 1939 |
| *Jean Bart* | Penhoët<br>Loire | Penhoët | 1/1/37 | „ 1940 |

(DUNKERQUE CLASS—2 SHIPS)

## + **DUNKERQUE** (Oct. 2, 1935). + **STRASBOURG** (Dec. 12, 1936).

Были затоплены в Тулоне
подняты. Не восстановлены

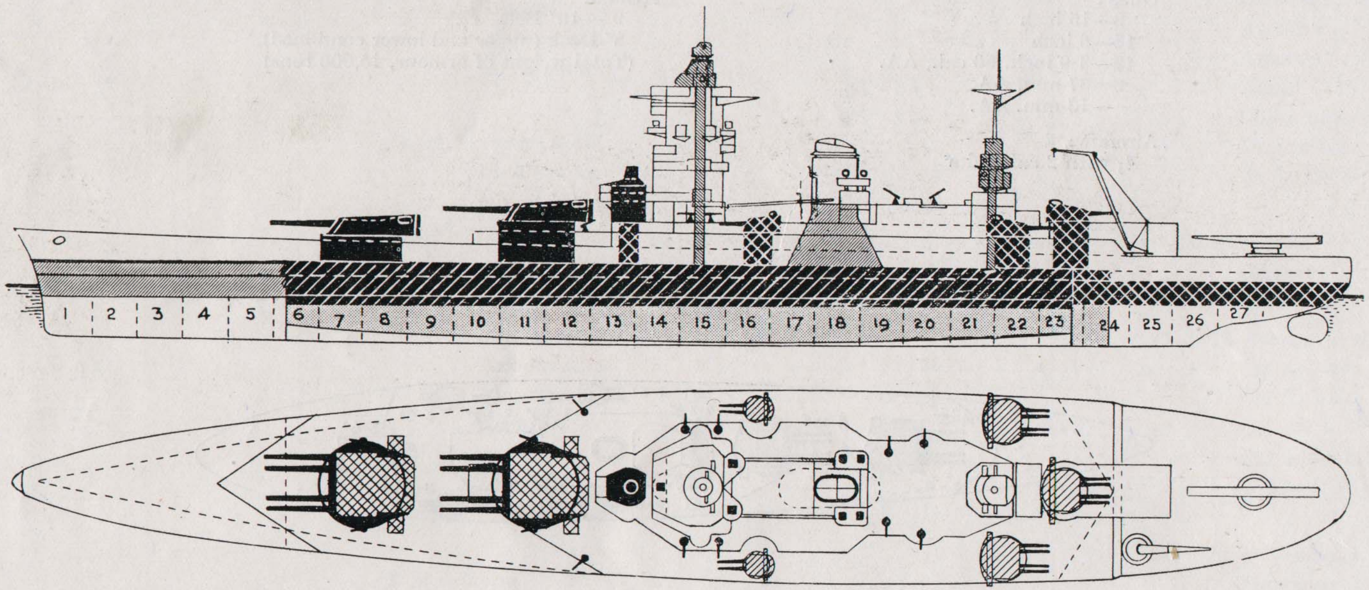
*Standard* Displacement, 26,500 tons. Complement: 1,381.

Dimensions: Length (*w.l.*) 686; (*o.a.*) 702 feet. Beam: 101¾ feet. Draught: 28 feet (*mean*)

Guns:
8—13 inch.
16—5·1 inch (dual purpose).
8—37 mm. AA.
32—13 mm. AA.

*Strasbourg*, 12—3·9 inch. 24 smaller.

Aircraft: 4, with 1 catapult (on q.d.).



Armour:
14″ C.T.
14″ Turrets.
11″ Side (at w.l.).
7″ do. (at main deck).
1½″ Longitudinal Torpedo Bulkhead.
Protective Decks:
5″ Upper.
2″ Lower.
(Total weight of armour, *over* 10,000 tons.)

Machinery: Parsons Geared Turbines. H.P.: 100,000 = 29·5 kts. (trials, 130,000 = 31·5).
Radius: 7500 miles at 15 kts. 6 Indret boilers.

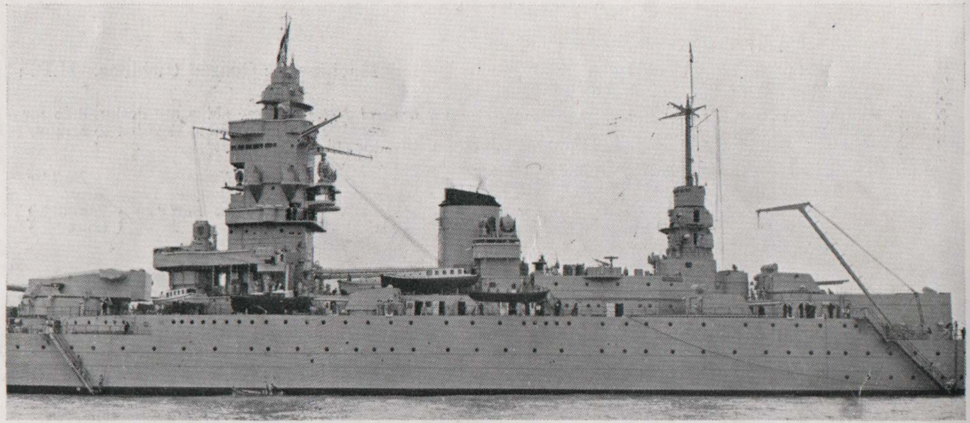
*General Notes.*—These two ships are to replace the *France* (lost in 1922) and the *Océan*. Cost approximately Frcs. 700,000,000 each. Modelled on the *Nelson*, the quadruple turrets were finally adopted after a variety of other gun dispositions had been considered, this grouping having been selected for the pre-War ships of the *Normandie* and *Tourville* classes. The turrets are widely separated to localise the effects of shell fire and reduce blast on the tower when trained abaft the beam. Bridge structure is also modelled on that of *Nelson*. It includes a lift in its interior. The percentage of displacement devoted to protection is the highest yet recorded in any capital ship. A feature which does not show in illustrations is the extraordinary height between decks.

*Dunkerque* was built in dry dock. Being too long for the dock, the stem piece was constructed separately and attached to hull after floating out.

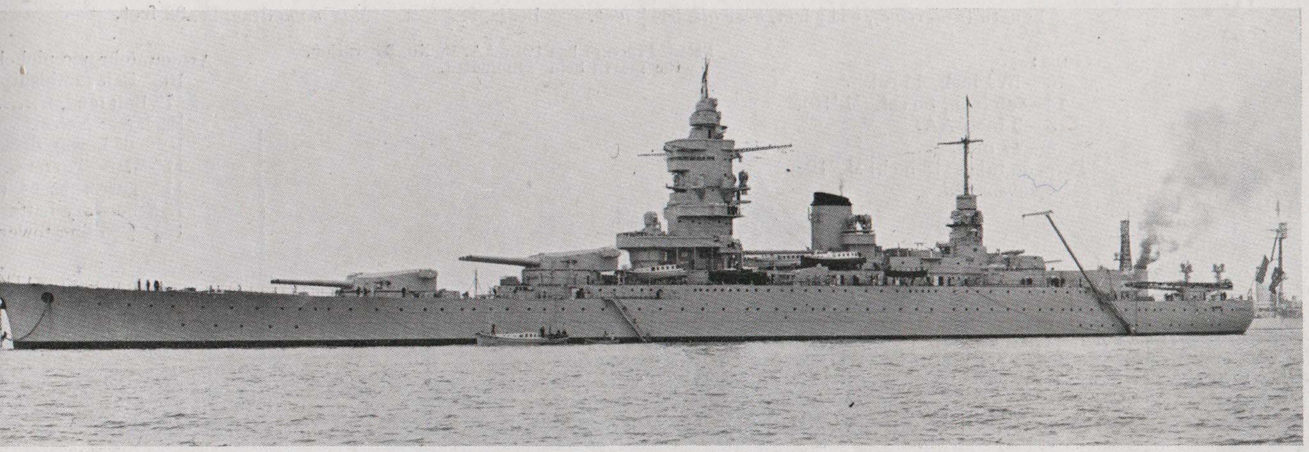
The construction of *Strasbourg*, although nominally by Penhoët, was shared by Ch. Loire.

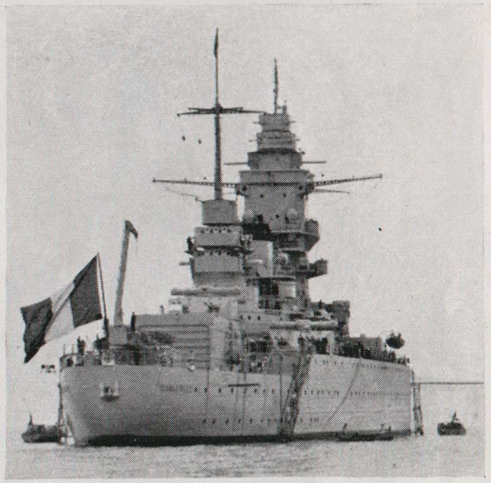
*Gunnery Notes.*—13 inch guns fire projectiles of 1,200 lbs. weight. Rate of fire 3 rounds a minute. All-round loading position. Elevation 35°. 5·1 inch guns can fire with extreme elevation and are said to have an average rate of fire of 10 rounds per minute and a range of 11,000 yards when so discharged.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* |
|---|---|---|---|---|
| *Dunkerque* | Brest | Loire | 26/12/32 | *April* 1937 |
| *Strasbourg* | Penhoët | Penhoët | 25/11/34 | *To be* 1938 |

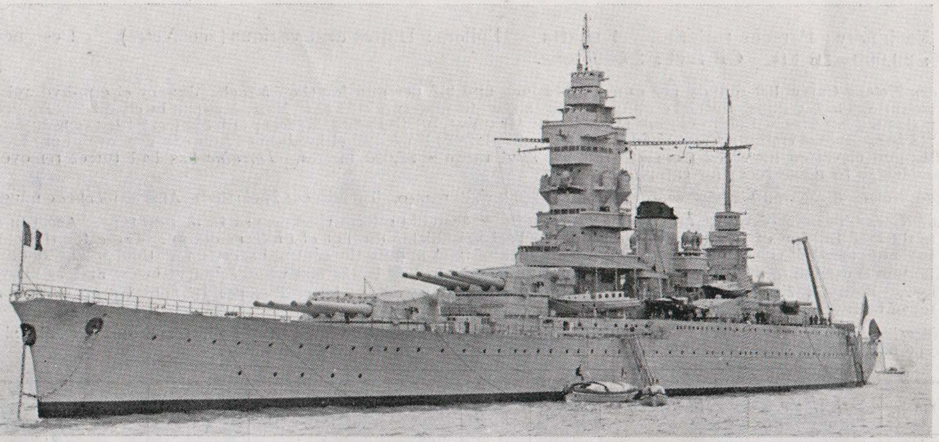


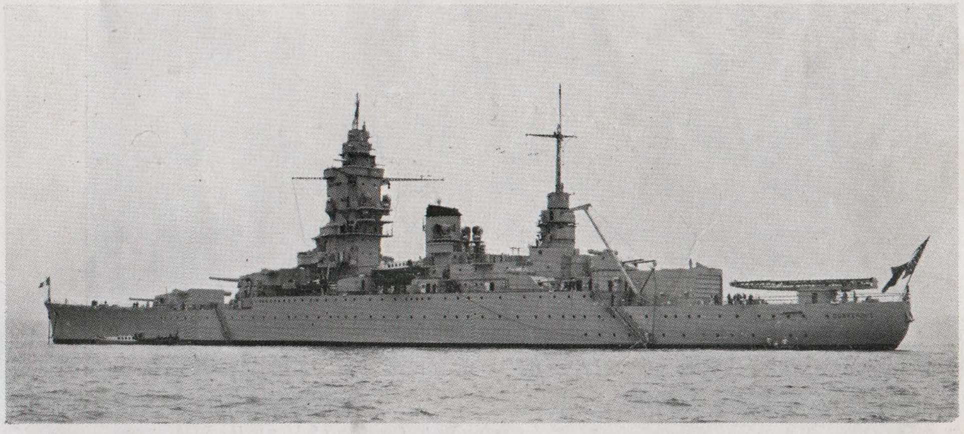
DUNKERQUE. 1937, *Fighting Ships.*

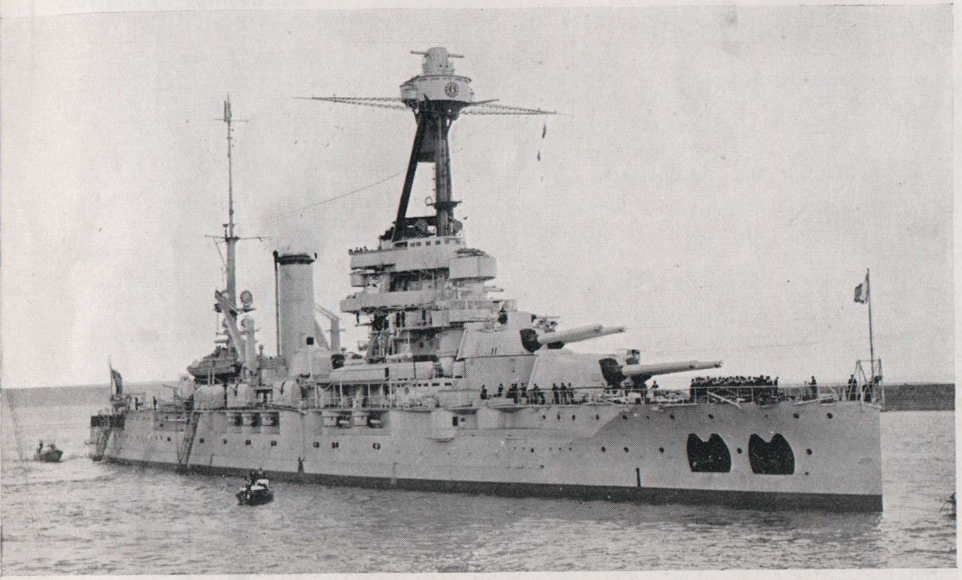

DUNKERQUE.


DUNKERQUE.

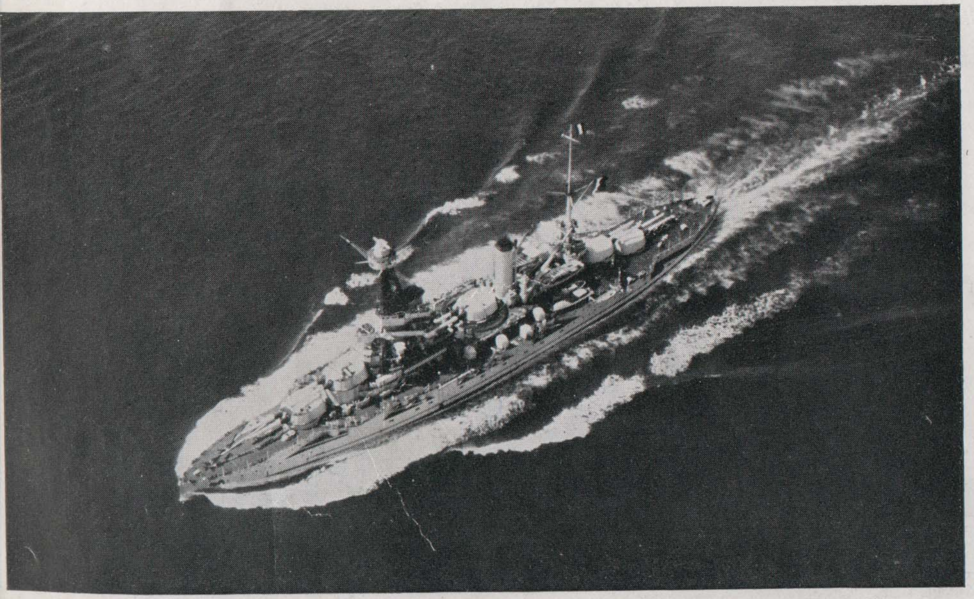
*All four photos*, 1937, *Fighting Ships.*


DUNKERQUE.


DUNKERQUE.



PROVENCE. 1936, *Courtesy M. Henri Le Masson.*



PROVENCE. 1935, *Courtesy of Mons. H. Le Masson.*

*General Notes.*—*B.*, *L.* and *P.* belong to the 1912 programme, one of them being a replace ship for the *Liberté*, blown up September, 1911. Estimated cost, £2,908,000 per ship = £126 per ton. After the War tripod foremasts and directors were installed. All converted to partial oil burning, 1927–30. In 1932–35 all were extensively refitted, being given new 13·4 inch guns (originally ordered for *Normandie* class), additional AA. and machine guns, enhanced protection, and small-tube boilers, burning oil. All can now make 20 kts. continuously at sea.

(BRETAGNE CLASS—FIRST 2 SHIPS.)

## BRETAGNE (April 21, 1913), PROVENCE (April 20, 1913).

*Standard* displacement, 22,189 tons. Complement, 1,133 (+ 57 as Flagship).

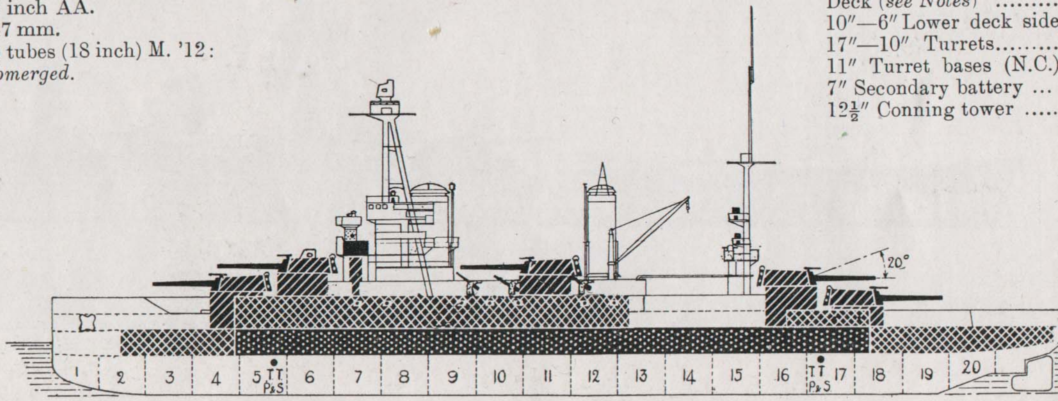
Length (*waterline*), 541$\frac{1}{3}$ feet, *over all*, 544$\frac{1}{2}$ feet. Beam, 88$\frac{1}{2}$ feet. *Maximum* draught, 32 feet.

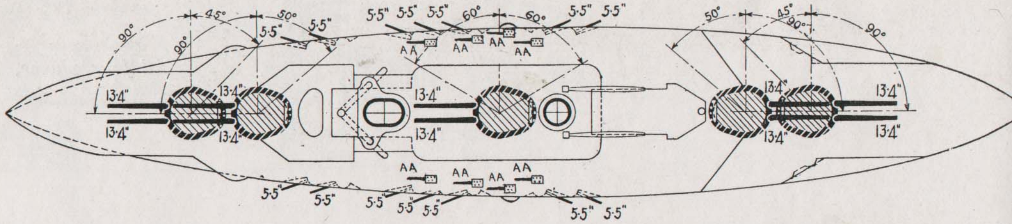
Guns:
- **10**—13·4 inch, 45 cal.
- **14**—5·5 inch, 55 cal. (M.'10).
- **8**—3 inch AA.
- **5**—47 mm.

Torpedo tubes (18 inch) M. '12:
- 4 *submerged.*

**Note.**—*Provence* has twin AA. in No. 3 position, the fourth being eliminated.

Armour (chromo-nickel):
- 10$\frac{3}{4}$" Belt (amidships) ...
- 7" Belt (ends) ..........
- Deck (*see Notes*) ........
- 10"—6" Lower deck side
- 17"—10" Turrets........
- 11" Turret bases (N.C.)
- 7" Secondary battery ...
- 12$\frac{1}{2}$" Conning tower .....





Machinery: Parsons turbine. 4 shafts. Boilers: Indret and various (see *Notes*). Designed H.P.: 29,000 = 20 kts. Oil fuel: 2,600 tons.

**Gunnery Notes.*—Carry 100 rounds per gun for 13·4 inch and 275 per gun for the 5·5 inch. Janney electro-hydraulic mountings to big guns. Special cooling for magazines—temperature 77° Fahr. Magazines can be completely flooded inside ten minutes. Height of guns above l.w.l.: 1st turret, 30$\frac{1}{2}$ feet; 2nd, 37$\frac{3}{4}$ feet; 3rd, 33$\frac{1}{4}$ feet; 4th, 28$\frac{1}{2}$ feet; 5th. 21$\frac{1}{3}$ feet. Arcs of training: Nos. 1 and 5, 270°; Nos. 2 & 4, 280°; No. 3. 120° either beam. Arcs of secondary guns: 120°. Big gun elevation increased from 18° to 23°: *max.* range = 23,000 metres. *Lorraine* has had turret removed amidships to make room for catapult.

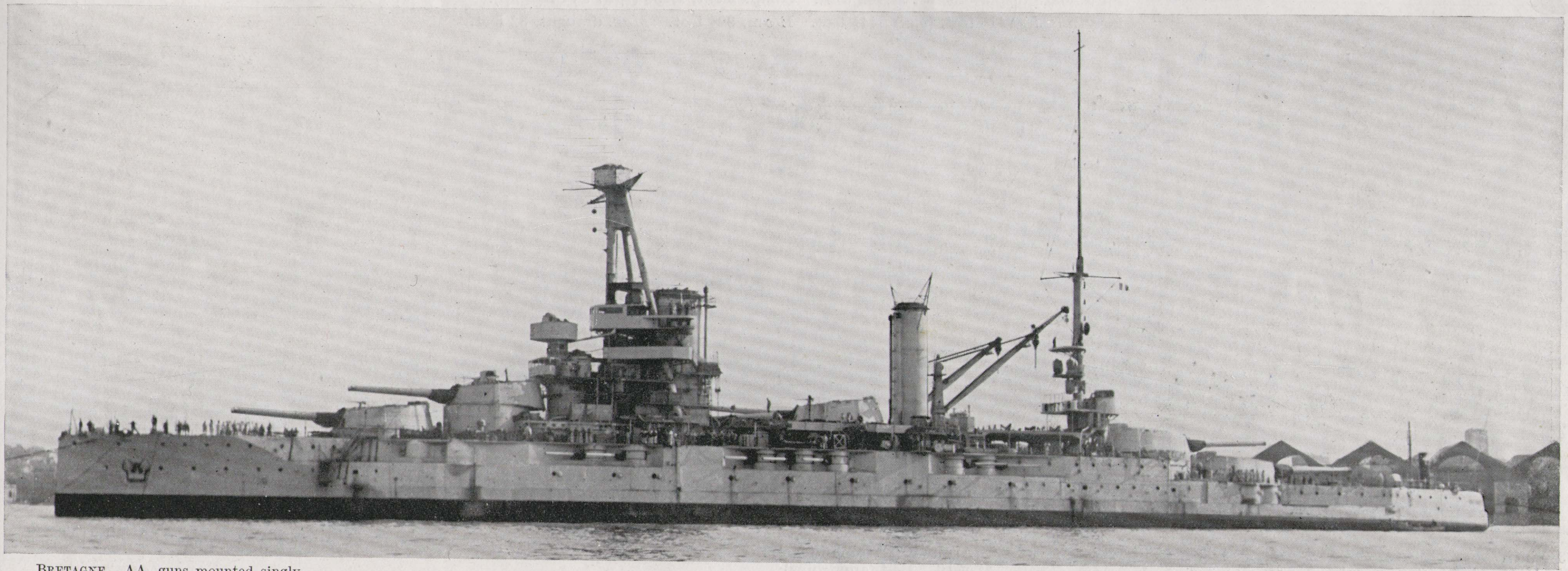
**Torpedo Notes.*—8—36" and 2—30" searchlights. 4—200 k.w. dynamos. Torpedoes: 24 carried. Also 30 blockade mines.

**Armour Notes.*—Turrets of maximum thickness at ports, instead of uniform thickness as in *J. Bart* type. According to the 1917 Edition of "Flottes de Combat," the barbette shields are not of uniform design. Those for the end barbettes are 13·4" thick, for the super-firing barbettes 9$\frac{3}{4}$" thick and for the central barbette 15$\frac{3}{4}$" thick. The double bottom is carried to the under side of protective deck. Main belt is 13$\frac{1}{3}$ feet wide, 5$\frac{7}{12}$ feet below and 7$\frac{3}{4}$ above l.w.l. Battery 197 feet long with 7 in. bulkheads. Protective decks: lower 2" slopes, 1$\frac{3}{4}$" flat. Upper, 1$\frac{3}{4}$" flat on top of belt.

**Engineering Notes.*—Boilers vary in each ship as table at foot. All now converted to oil fuel. 6 new Indret small tube type now supply turbines with steam, though some of old boilers remain in each ship.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* | *Turbines* | *Boiler* | *Best recent speed* |
|---|---|---|---|---|---|---|---|---|
| *Bretagne* | Brest | La Seyne | July '12 | Sept.'15 | 21·4 kts. | Parsons | Niclausse | 22 |
| *Lorraine* | Penhoët | Penhoët | Nov. '12 | July '16 | | Parsons | Belleville | 22 |
| *Provence* | Lorient | La Seyne | June '12 | June'15 | | Parsons | D.T.Guyot | 20·5 |

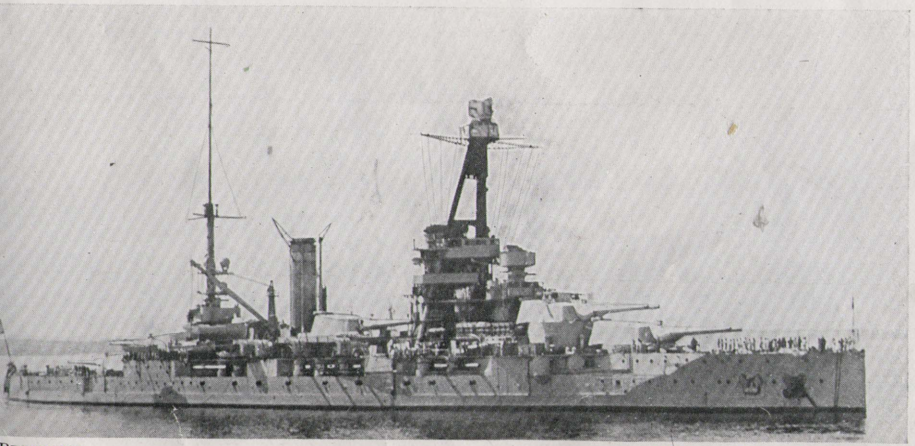
*Unofficial.



BRETAGNE. AA. guns mounted singly.

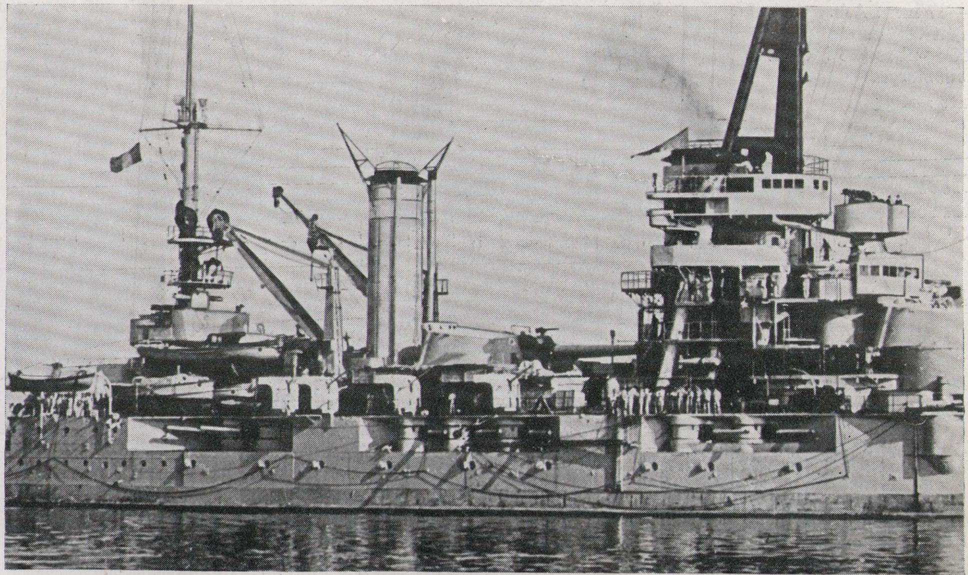
1934 *Official* (*added* 1935).

*For particulars of* BRETAGNE *see preceding page.*



BRETAGNE.

1935, *Capitaine M. Adam.*



BRETAGNE.

1935 *courtesy of Mons. H. Le Masson.*

(Bretagne Class—3rd Ship.)

## LORRAINE (September 30, 1913).

Standard displacement : 22,189 tons. Complement, 1,133 (+57 as Flagship).
Length (*w.l.*) 541⅓ feet, (*o.a.*) 544½ feet. Beam, 88½ feet. *Max.* draught, 32 feet.

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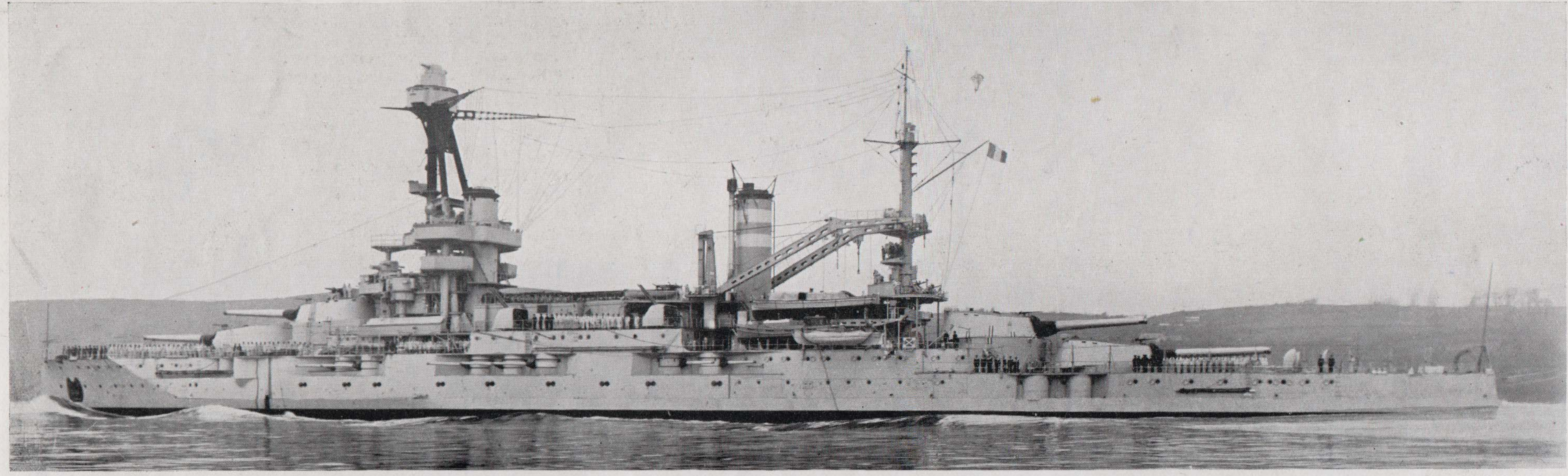


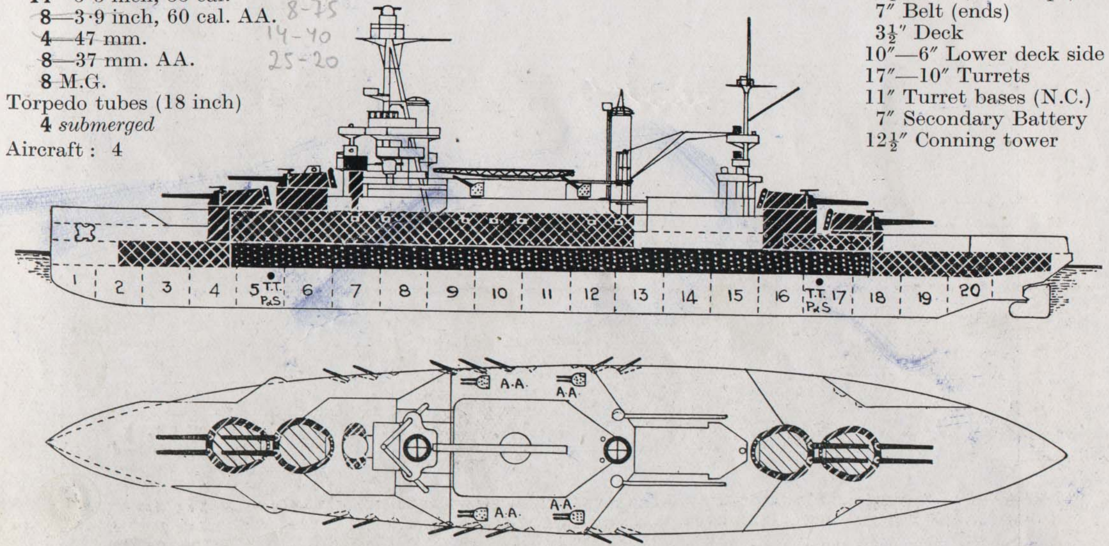
1936, *Official.*

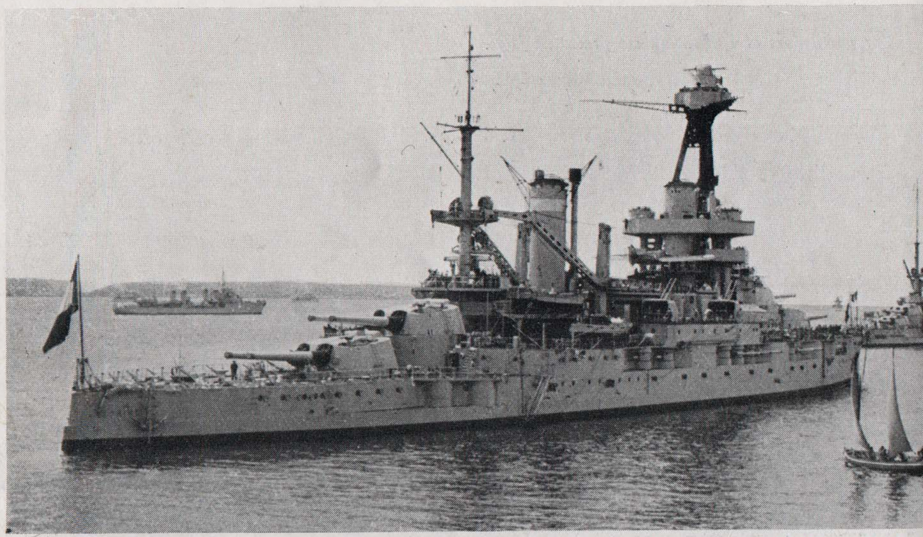
Guns :
- **8**—13·4 inch
- **14**—5·5 inch, 55 cal.
- ~~**8**—3·9 inch, 60 cal. AA.~~ 8-7.5
- ~~**4**—47 mm.~~ 14-40
- ~~**8**—37 mm. AA.~~ 25-20
- ~~**8** M.G.~~

Torpedo tubes (18 inch)
- **4** *submerged*

Aircraft : 4

Armour (Chromo-nickel) :
- 10¾″ Belt (amidships)
- 7″ Belt (ends)
- 3½″ Deck
- 10″—6″ Lower deck side
- 17″—10″ Turrets
- 11″ Turret bases (N.C.)
- 7″ Secondary Battery
- 12½″ Conning tower





1937, *courtesy M. Henri Le Mas*

Machinery : Parsons turbines. 4 shafts. Boilers : Indret. Designed H.P. : 29,000 = 20 kts. Oil fuel : 2,600 tons.

*General Notes.*—*Lorraine* was extensively reconstructed in 1934–35, centre turret being removed to make room for aircraft and catapult. For other particulars, vide sister ships *Bretagne* and *Provence*, on previous page.

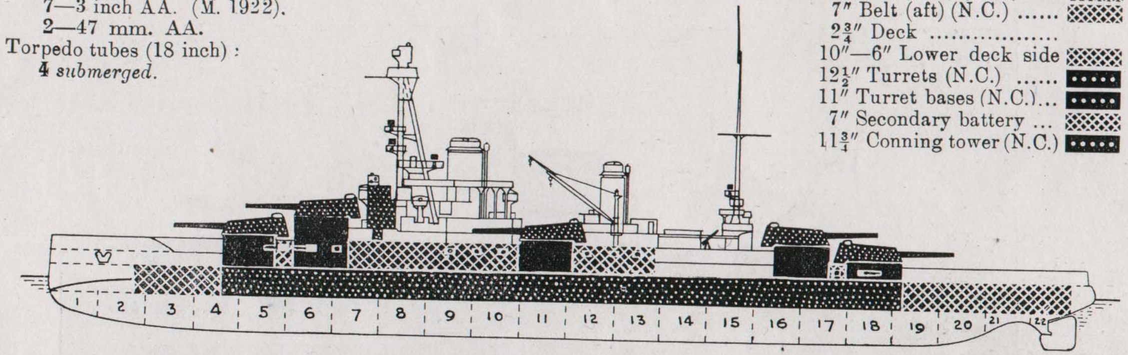
## COURBET (Sept. 23, 1911), PARIS (Sept. 28, 1912).

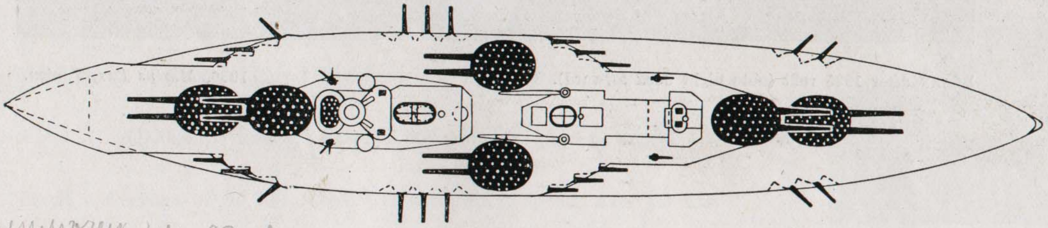
*Standard* displacement, 22,189 tons. *Full load*, 25,850 tons. Complement, 1108.
Length (pp.) 541 feet, (o. a.) 551 feet. Beam, 92½ feet. *Maximum* draught, 32½ feet.

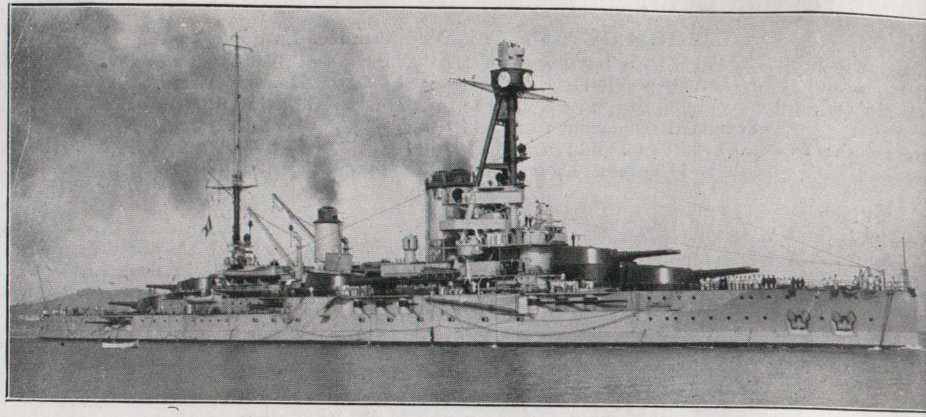
Guns (M. '06—10):
**12**—12 inch, 45 cal.
**22**—5·5 inch, 55 cal. (M. '10).
**7**—3 inch AA. (M. 1922).
2—47 mm. AA.
Torpedo tubes (18 inch):
4 *submerged*.

Armour: (Chromo-nickel):

| | |
|---|---|
| 10¾" Belt (amidships)...... | ● |
| 7" Belt (bow) (N.C.) ... | ▨ |
| 7" Belt (aft) (N.C.) ...... | ▨ |
| 2¾" Deck ................. | |
| 10"—6" Lower deck side | ▨ |
| 12½" Turrets (N.C.) ...... | ● |
| 11" Turret bases (N.C.)... | ● |
| 7" Secondary battery ... | ▨ |
| 11¾" Conning tower (N.C.) | ● |







PARIS. (Observe funnels.) 1929 *Photo, M. Bar, Toulo*

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials Full power* | *Boilers* | *Be rec spe* |
|---|---|---|---|---|---|---|---|
| *Courbet* | Lorient | St. N'z're (Ch. de l'Atlantique) | Sept., '10 | Sept. '13 | =20·81 | Belleville & small tube in each | 20 |
| *Paris* | La Seyne | F.&C. de la Méd | Nov., '11 | Aug. '14 | 35,610=21·6 | | 20 |

*General Notes.*—Designed by M. Lyasse. Construction very fine and highly finished in details. Average cost £2,475,000. *France*, of this class, foundered in Quiberon Bay, Aug., 1922. All this class have been reconstru 1928–1929. *Courbet* has been completely re-boilered at La Seyne (1929) with small tube boilers (originally or for *Normandie* class), and is now gunnery training-ship. *Paris* is attached to Torpedo School for sea tra *Océan*, of this type, has been demilitarised for training purposes.

2) [illegible] из [illegible]
как [illegible]

Machinery: Parsons turbine. 4 shafts. 24 Boilers: see Notes. Designed H.P. 28,000 = 20 **kts**. Coal: *normal*, 906 tons; *maximum*, 2700 tons; also 310 tons oil (two boiler rooms are fitted for oil burning). *Endurance, 2700 at 18¾ kts.

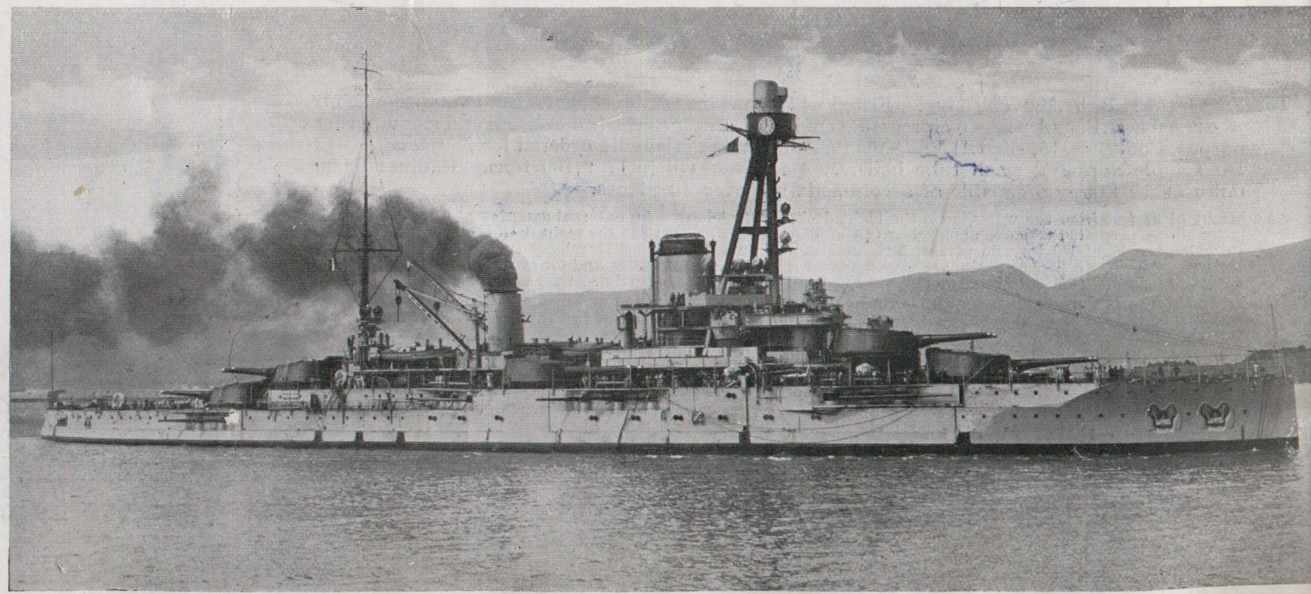
*Armour Notes*—Belt, 13¼ feet wide; 7¾ feet of it above water, 5½ feet of it below. For about 325 feet it is 10¾". Upper belt, 7" thick forms redoubt for secondary battery. The 4—5·5 inch aft. are in casemates. Prot. decks: 2¾" curved from lower edge of belt to l.w.l. level. Above that a flat 1¾" deck from end to end on top of main belt. Above again is a 1⅕" splinter deck against aerial attack. Conning tower is in three stories. 10¾" communication tube. Two armoured fire control stations on top.

**Gunnery Notes.*—Amidship 12 inch 180°, the centre line turrets 270° each. The 5·5 inch 120°. Elevation of guns reported increased to give range of 24,000 metres. Height of guns above water: Turrets (1) 30½ feet, (2) 37¾ (amidships) 25 feet, (5) 28½ feet, (6) 21⅓ feet; upper deck battery, 5·5 inch, 21⅓ feet; main deck, 5·5 inch aft, 11⅔ feet. Ammunition carried: 100 for each 12 in., 275 for each 5·5 inch, 300 for each 3 pdr. Westinghouse refrigerators in magazines. 77°F.

**Torpedo Notes.*—8 searchlights (36 inch), also 2—30 inch. Carries 12 torpedoes and 30 blockade mines.

**Engineering Notes.*—Outer shafts: H.P. turbines; inner, L.P. Condensers (2): 32,076 sq. feet cooling surface. Turbines: 300 r.p.m. Belleville oil fuel system.

* Unofficial.



COURBET. 1930 *Photo, Ba*

## FRANCE—Aircraft Carrier

в строю

**BÉARN** (F. & Ch. de la Mediterranée, La Seyne).

Laid down January, 1914, as a battleship of the "*Normandie*" class. Launched April, 1920, construction having been suspended during the war; re-designed as an Aircraft Carrier (*Bâtiment Porte-Avions*), and conversion begun at La Seyne in August, 1923. Finally completed May, 1927.

Standard displacement: 22,146 tons; 25,000 tons *full load*.

Dimensions: 576 (*w.l.*), 560 (*p.p.*) 599 (*o.a.*) feet × 89 feet × 30½ feet (*max.* draught). (Extreme beam is 115½ feet.) Complement: (including air personnel) 875.

Guns:
- 8—6·1 inch. 7-127
- 6—3·9 inch. AA. 24-28мм
- 8—3 pdr. AA. 26-20мм
- 12 M.G.

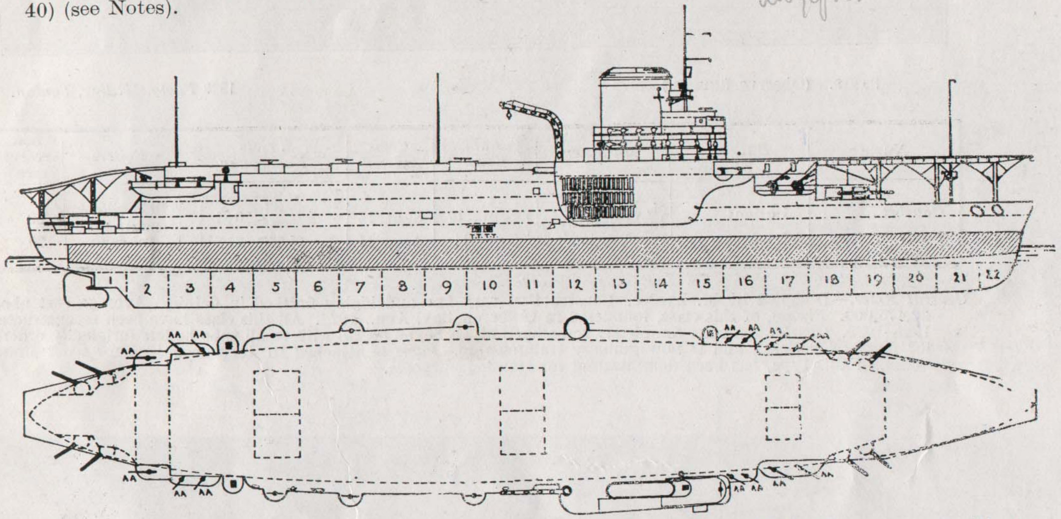
Tubes:
- 4—21·7 inch

Aircraft: 36 (full complement, 40) (see Notes).

*Note to Plan.*—3·9 inch are now mounted behind shields, and flight deck is curved downward at bow.

Armour:
- 1″ Main deck ..................
- 1—2¾″ Lower deck .......... ...
- 1″ Flight deck ..................
- 3¼″ Side armour to 6½ feet below w.l.

модернизир. 35 и 44 г



Total designed H.P. 37,200 = 21·5 kts. Fitted with 2 turbines on inner shafts (for main propulsion) = 22,500 S.H.P. and 2 sets reciprocating engines on outer shafts (for cruising and manœuvring purposes only) = 15,000 I.H.P. This machinery was originally ordered for *Normandie*. 12 Du Temple-Normand small tube boilers. 4 screws. Oil fuel: 2,160 tons. Radius: 6,000 miles at 10 kts. Is capable of accommodating over 40 planes.

At a height of 51 feet from the waterline is the flight deck, 600 feet long. An external gangway at a level 3 ft. 9 in. lower allows personnel to move about clear of the flight deck. Underneath the flight deck is the central hangar, in which are housed 5 torpedo planes, 5 reconnaissance planes, and 7 fighter planes (part of the total of 36 carried). Under this hangar again, are workshops for assembling and repairs, and for accommodation of partially equipped planes. The hangar and workshops can be divided into two portions, by means of asbestos curtains.

Hangar and workshops are equipped with overhead transporter cranes for the rapid manipulation of heavy weights, and a special type of derrick (12 tons capacity, 33 feet radius) is fitted on the starboard side of ship, abaft funnel.

Planes are carried up to flight deck by means of three electric lifts, the smallest being 27 × 40 feet and the largest 50 × 50 feet. On a lift, forward, is a charthouse which can be raised above or dropped below flight deck.

Smoke is diluted with cold air to avoid eddies in surrounding atmosphere.

Other items of equipment comprise a special hot water service for filling radiators of seaplanes, and a pneumatic distributing system for conveying their fuel.

Stores carried include 3530 cubic ft. of petrol, under inert gas, and 530 cubic feet of oil.

It has been stated that owing to lack of space on flight deck, only about one fourth of the total number of planes carried can be employed simultaneously.

*Trials.*—On trial a speed of 21·5 kts. was reached with over 40,000 H.P.

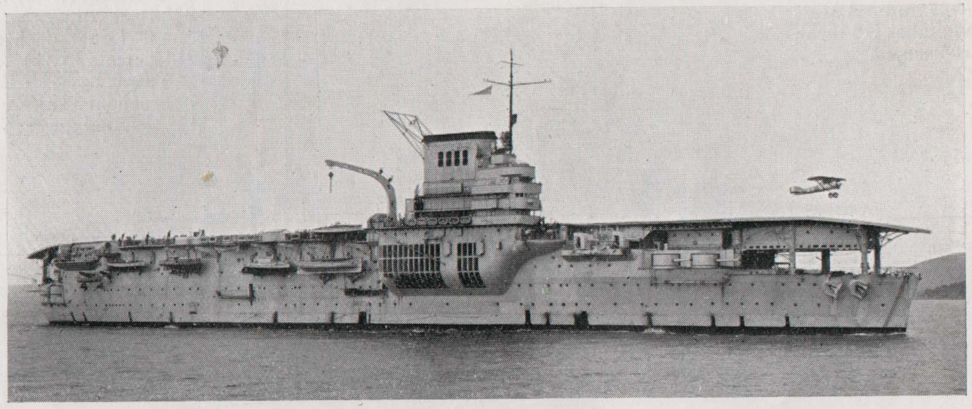
(Refitted completely at La Seyne, 1935.)

Легкий АВ Arromanches от Англии в аренду на 5 лет
(14000т 25 узл 24-42мм 19-40мм 40 самол)

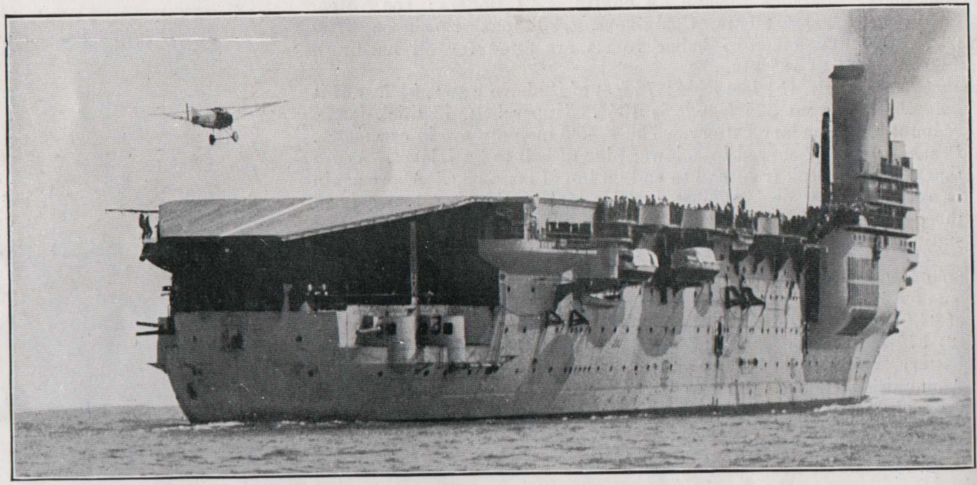
Строится Clemenceau 16700т 32уз 50 сам

## New Construction

2 Aircraft Carriers are to be built under 1938 Programme. Reported that they will be of over 20,000 tons, armed with 5·1 inch AA. guns and with a speed of 32 kts.



BÉARN after 1935 refit (note flight deck forward). 1936, *Marius Bar, Toulon.*



BEARN. 1927, *Marius Bar.*

Эск. АВ Dixmude получен от Англии в 45 г
1940 12000т 16.5уз 3-102 4-40 8-20 [illegible]

## ✝ ALGERIE, (Brest, May 21st, 1932). Toulon

Standard Displacement, 10,000 tons. Complement, 605.
Length (*w.l.*) 610¼ feet; (*o.a.*) 617 feet. Beam, 65⅔ feet. Draught, 24 feet. (*max.*)

Guns:

**8**—8 inch (new model).
**12**—3·9 inch AA.
**8**—37 mm. AA.
**16**—13 mm. AA.

Armour:

4⅓″ Vert. Side.
3″ Deck.
Internal bulges, with hull thickness of 1½″.
(Total weight of Armour 2,000 tons.)

Torpedo tubes:

**6**—21·7 inch (tripled).

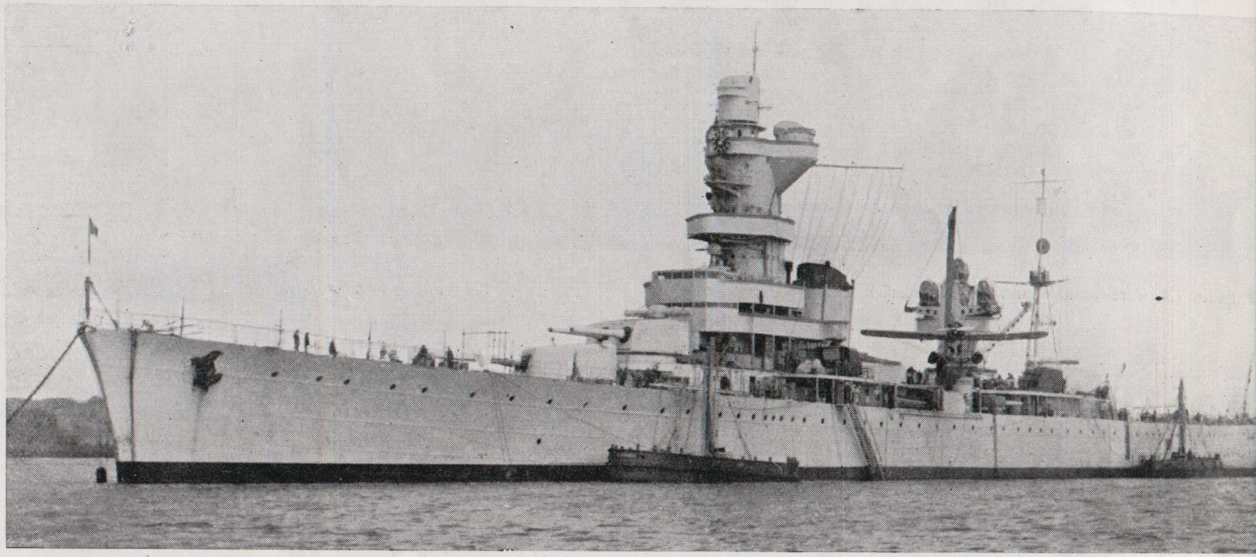
Aircraft: 3.

Catapults: 2, of 3-ton type.

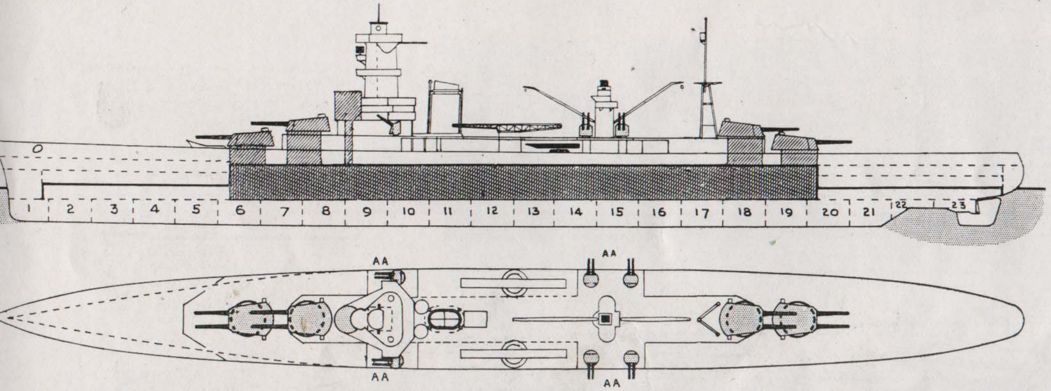
Machinery: 4 Rateau geared Turbines. Boilers: 8 Indret.

S.H.P.: 84,000 = 31 kts. Radius: 5,000 miles at 15 kts. Fuel: 1,900 tons

Trials: Average of 86,000 = over 32 kts. Max. speed, over 33 kts.

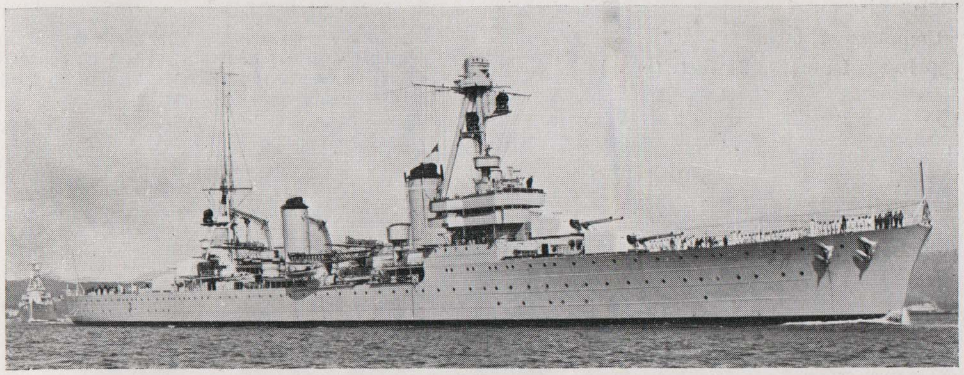


1934 *Photo, Capt. M.*

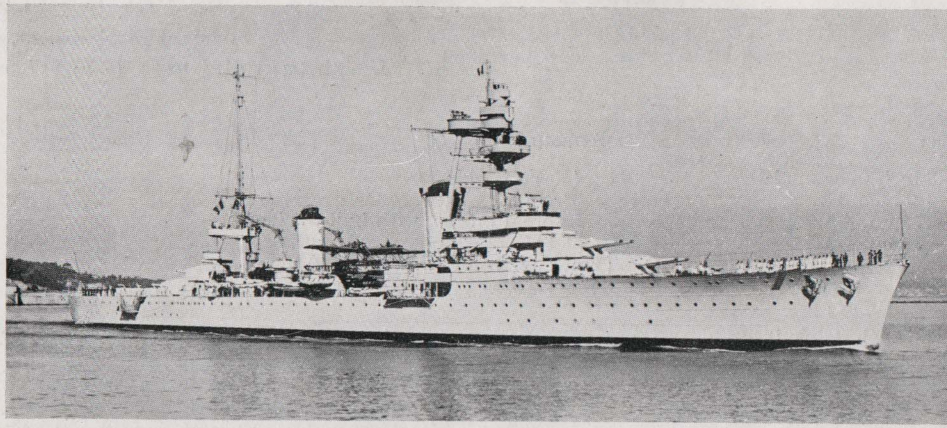


*General Notes.*—Laid down on March 13th, 1931 at Brest. The design constitutes a distinct departure from the "Tin-clad" vogue, and is more along the lines of a modern edition of the armoured cruiser of thirty years ago, being a reply to the Italian *Zara* type. A novel distribution of internal armour has been introduced giving special anti-aerial and torpedo protection, while the big guns and hoists are adequately armoured instead of being mounted in gunhouses made up of thin plating with unarmoured hoists. Speed has not been reduced as a result of these modifications and equals that of the *Foch* group but with less designed h.p. A new 8 inch gun is introduced in this ship, firing improved shells and having a greater range than the previous model. She was completed in 1934.

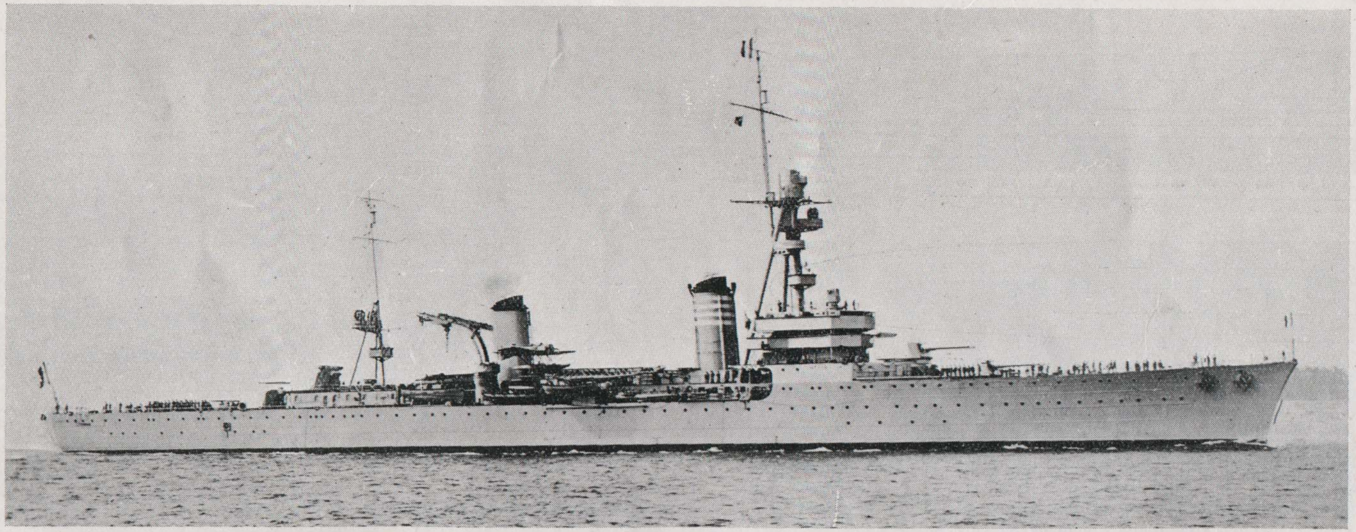
*Aircraft Notes.*—Unlike those of previous cruisers, *Algérie's* catapults are of explosive type. Hitherto compressed air has been the motive power.



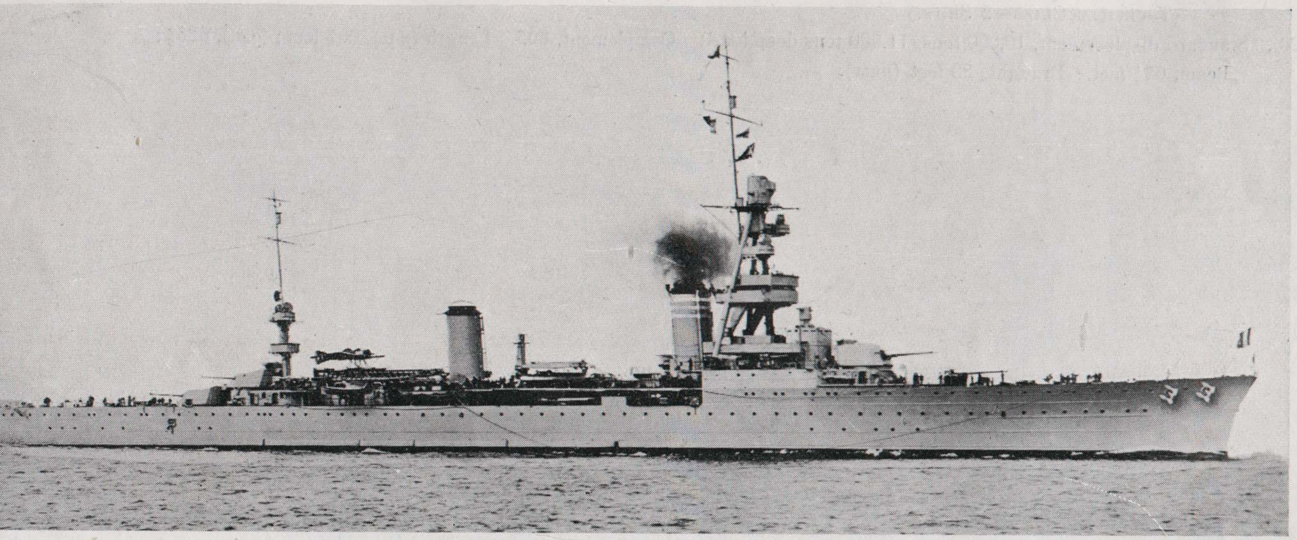
DUPLEIX (No fore-topmast and tall mainmast). 1934 *Photo, Marius Bar.*



FOCH (Foremast differs from other ships). 1935, *Gar*



COLBERT (Note position of catapult, bridgework, cranes, and mainmast). 1930 *Photo.*



FFREN (Note mainmast, bridge, and position of catapults).

1930 *Photo.*

SUFFREN CLASS—~~4~~ SHIPS.

**SUFFREN** (May 3rd, 1927). **COLBERT** (April 20th, 1928).
**FOCH** (April 24th, 1929). **DUPLEIX** (October 9th, 1930).

*Standard* Displacement, 9,938 tons. Complement, 605.

Length (*p.p.*), 607 feet, (*o.a.*), 637 feet, (*Suffren*, 643 ; *Dupleix*, 636½ feet), Beam, 63½ feet, (*Suffren*, 65⅔ feet). Draught, 24½ feet (*max.*).

Guns :
**8**—8 inch
**8**—3·5 inch AA.
(*Suffren*, **8**—3 inch AA.)
~~**6** to **8**—37 m/m.~~ 4-40
**8** to **16** M.G. 8-37
Torpedo Tubes : 8-20
**6**—21·7 inch (tripled). 12-13
Aircraft : 3.
~~Catapults~~ : 2 of 3-ton type.
[illegible]

Armour :
Has a patch of thin armour over engine and boiler spaces, with 17 W.T. bulkheads carried right up to upper deck. Fitted with internal bulges.

1) [illegible]
2)
3)
4)

Machinery : 3 Rateau geared turbines. Boilers : 9 Guyot (8 main and 1 auxiliary). Designed : S.H.P. 90,000=31·3 to 32·5 kts. 3 screws. Fuel : oil, 1800 tons. Auxiliary equipment driven through 3 Diesels (Renault type) with dynamos. Radius : 5000 miles at 15 kts.

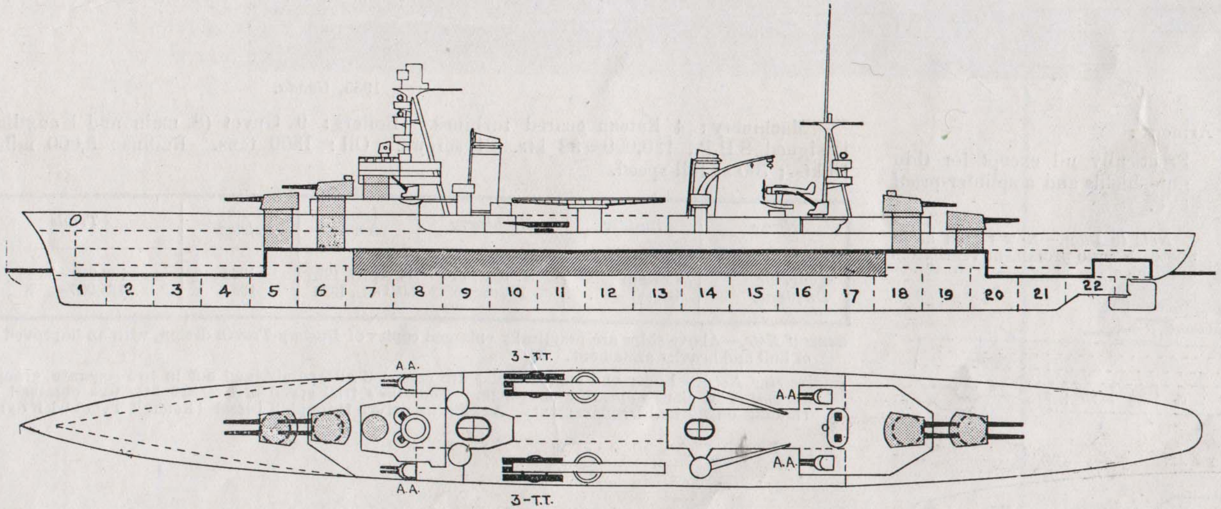
| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* |
|---|---|---|---|---|---|
| *Suffren* | Brest | A. & C. de Bretagne in all | May, 1926 | Dec., 1928 | 98,300=33·7 |
| *Colbert* | „ | | June, 1927 | Sept., 1929 | 101,800=33·9 |
| *Foch* | „ | | June, 1928 | 1930 | 119,000 = 34·1 |
| *Dupleix* | „ | | Oct., 1929 | 1931 | |

Are able to steam at 29 knots with half-power.

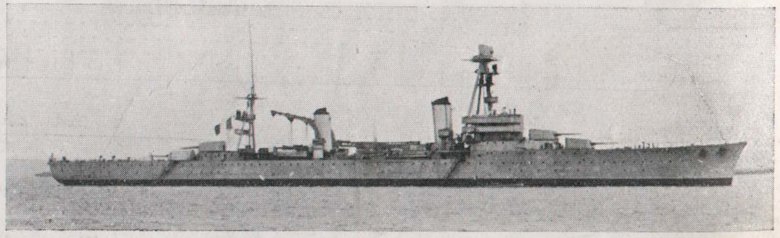
Cost : *Suffren*, 144 million. *Colbert*, 147 million francs.
*Foch*, 156 million. *Dupleix*, 167 million francs.

*General Notes.*—Are modified editions of *Tourville* class in which about two knots have been sacrificed in order to gain better protection. At full speed *Foch* proved very successful, compared with *Lamotte-Picquet*, due to modified bow and stern lines.

*Gunnery Notes.*—Light AA. armaments vary in these ships, as will be gathered from figures given above.



*Appearance Notes.*—*Foch* has different foremast from other ships. *Dupleix*, no fore-topmast. *Colbert* resembles *Dupleix*, but has fore-topmast. *Suffren* has pole mainmast and only one crane (with straight jib) and derrick post, instead of gooseneck cranes as in other ships of class. Bridgework also differs.

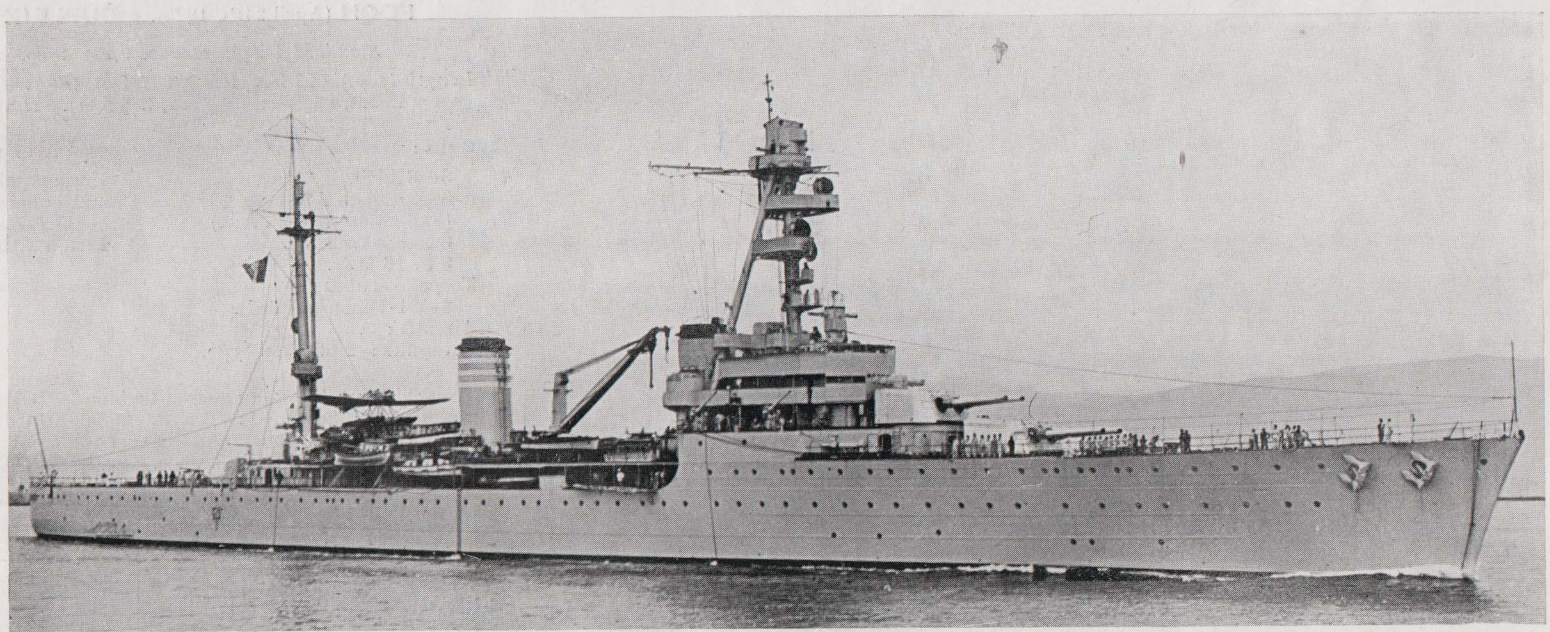


DUPLEIX.

1932 *Photo, Capt. M. Adam.*

(TOURVILLE CLASS—2 SHIPS.)

**DUQUESNE** (Dec. 17th, 1925), **TOURVILLE** (Aug. 24th, 1926). Standard displacement, 10,000 tons (11,900 tons deep load). Complement, 605. Length (*p.p.*), 607 feet; (*o.a.*), 626⅔; Beam, 62⅓ feet. Draught, 23 feet (*max*).

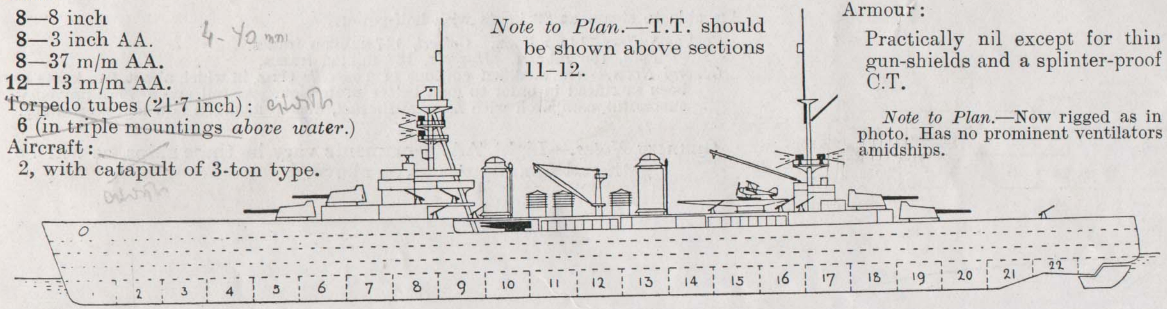


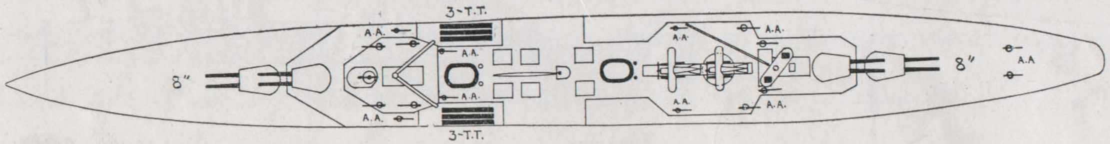
TOURVILLE.

1935, *Ganda.*

Guns:
**8**—8 inch
**8**—3 inch AA. 4-40 mm
**8**—37 m/m AA.
**12**—13 m/m AA.
Torpedo tubes (21·7 inch):
6 (in triple mountings *above water.*)
Aircraft:
2, with catapult of 3-ton type.

*Note to Plan.*—T.T. should be shown above sections 11–12.





Armour:
Practically nil except for thin gun-shields and a splinter-proof C.T.

*Note to Plan.*—Now rigged as in photo. Has no prominent ventilators amidships.

Machinery: 4 Rateau geared turbines. Boilers: 9 Guyot (8 main and 1 au
Designed S.H.P., 120,000=**33** kts. 4 screws. Oil: 1800 tons. Radius: 5,000
15 kts.; 700 at full speed.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Com-pleted* | *Trials* |
|---|---|---|---|---|---|
| *Tourville*<br>*Duquesne* | Lorient<br>Brest | A. & C. de Bretagne | 14 April, 1925<br>30 Oct., 1924 | 1928<br>1928 | 130,000=36·<br>135,000=35· |

*General Note.*—Above ships are practically enlarged copies of *Duguay-Trouin* design, with an impro
of hull and heavier armament.

*Engineering Notes.*—Boiler and engine rooms are arranged alternately, and not in two separate g
suggested in plans appearing elsewhere. *Tourville's* trial speed of over 36 kts. was obtai
running on normal Displacement. Auxiliaries driven through 3 Diesels (Renault Type) with

1)
2) } [illegible]

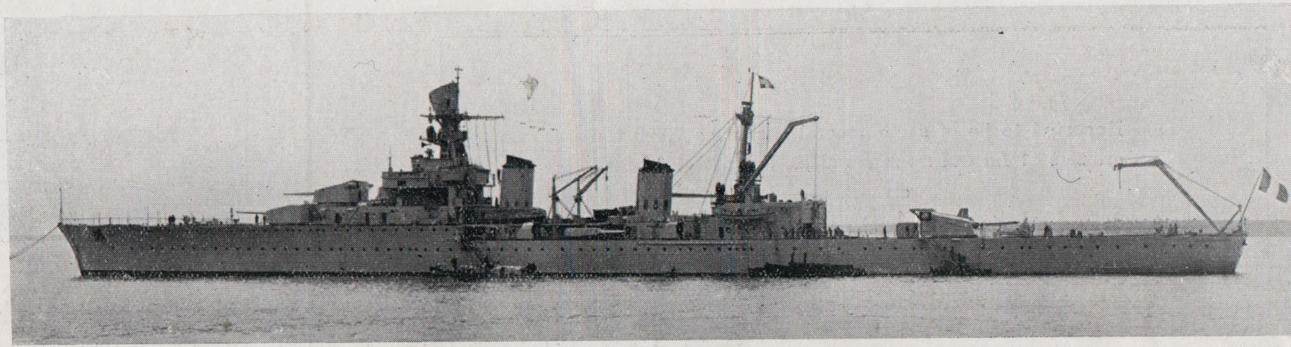
## La GALISSONNIÈRE (Nov. 17, 1933). JEAN de VIENNE (July 31, 1935).
## GLOIRE (Sept. 28, 1935). MARSEILLAISE (July 17, 1935). MONTCALM (Oct. 26, 1935). GEORGES LEYGUES (*ex-Chateaurenault*) (March 24th, 1936).

Displacement : 7,600 tons (9,120 tons *full load*).

First 2 ships : Length : 587¼ feet (*o.a.*) ⎫ Beam : 57⅓ feet.
Remaining 4 : Length : 564⅓ feet (*o.a.*) ⎭ Draught : 17⅓ feet (*max.*).

Guns :
9—6 inch
8—3·5 inch AA. 24-40mm
9 8—13 mm. AA. 16-20mm
Tubes :
4—21·7 inch
Aircraft :
4, with 1 Catapult.

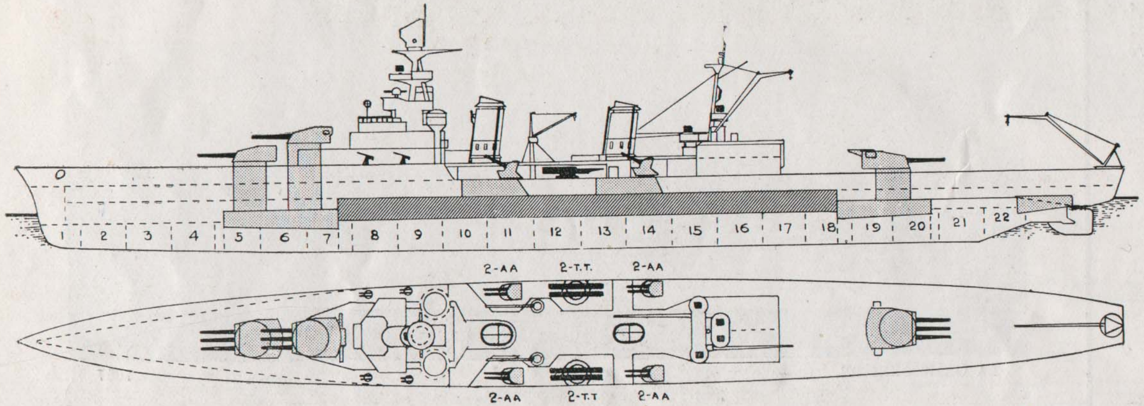
Armour (unofficial) :
4¾″—3″ Vert. Side.
2⅔″ Deck
5½″ Turret faces.
2″ Turret sides.
3¾″ C.T.



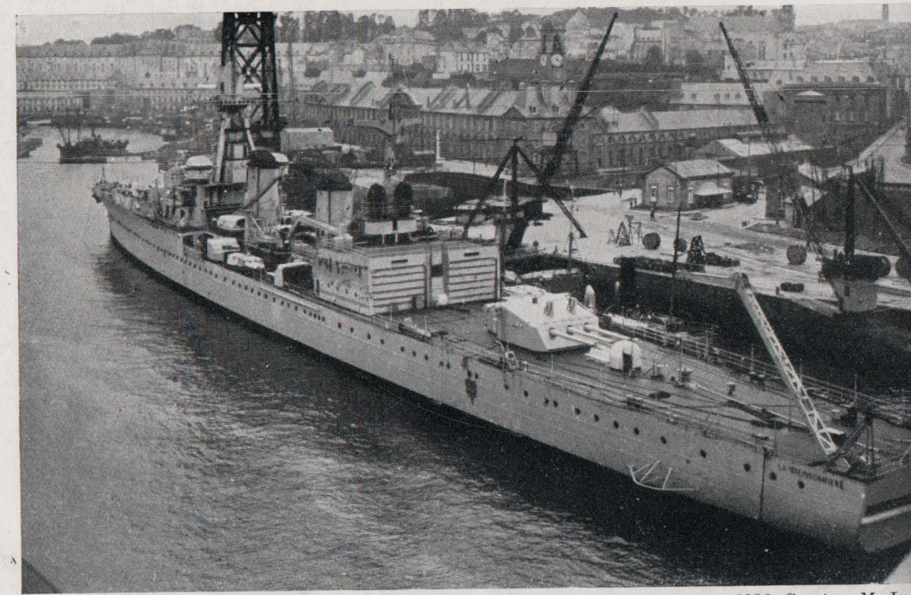
La Galissonnière

1936, Of

3) 5) 6) } l [illegible]



Stern is square.



La Galissonnière, showing opening for Hein mat in counter.

1936, *Courtesy M. Le*

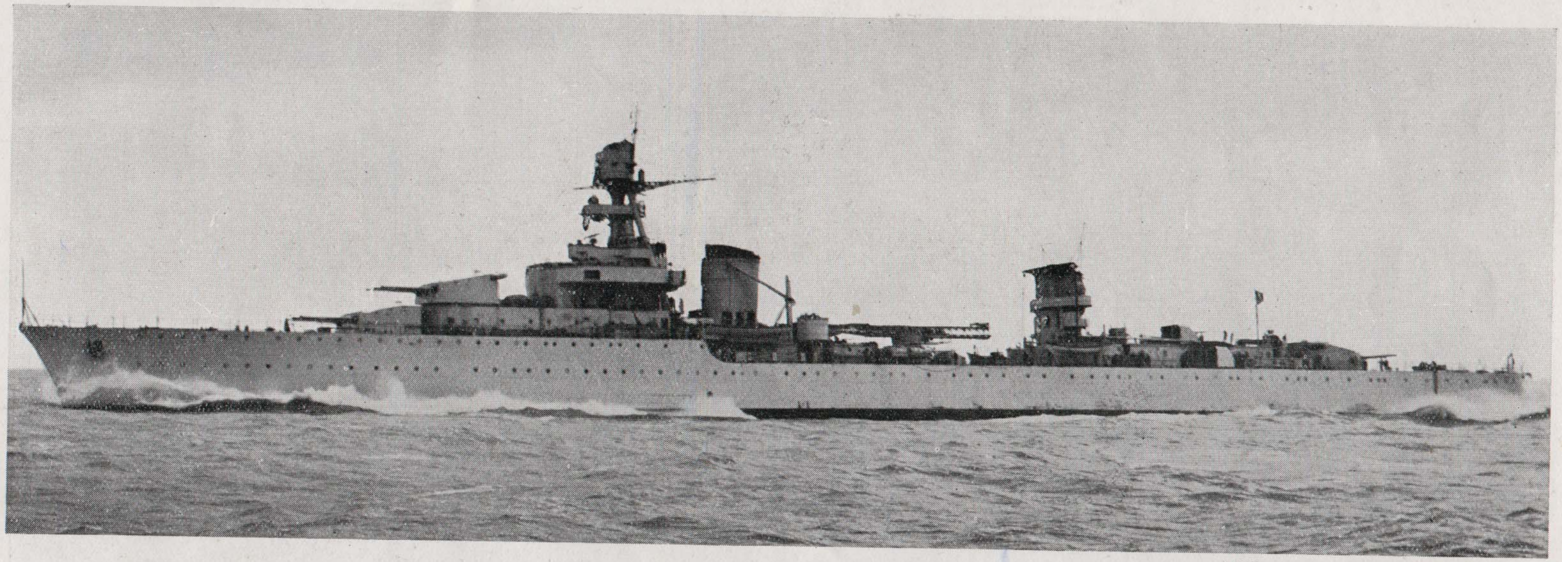
| *Programme* | *Name* | *Builder* | *Machinery* | *Laid down* | *Co* |
|---|---|---|---|---|---|
| 1931 | *La Galissonnière* | Brest | Ch. de Bretagne | 27.10.31 | 31 |
| | *Jean de Vienne* | Lorient | | 12.31 | 1 |
| 1932 | *Gloire* | F. C. Gironde | By builders in each case | 1933 | 1 |
| | *Marseillaise* | A. C. Loire | | | 1 |
| | *Montcalm* | F. C. Med. | | | 2 |
| | *G. Leygues* | A. C. St. Nazaire (Penhoët) | | | |

Machinery : 2 Rateau (first 3 ships) or Parsons geared turbines. S.H.P. : 84,000 = 31·5 kts. in first two ships. S.H.P. : 88,000 = 32·5 kts. in remaining ships. Boilers : 4 Indret small tube. Fuel : 1,500 tons oil.

*General Notes.*—The delay in the construction of these ships was in part due to modifications having been introduced into the design, which is based on that of the *Emile Bertin* with additional protection which is said to be capable of resisting 6-inch shell. A feature of the design is the long quarter-deck. The bow flare is angled and not curved. The four later ships differ from *La Galissonnière* and *Jean de Vienne* in minor details. Altogether the design of these cruisers is a remarkably successful one, embodying the maximum advantage to be obtained from their relatively low displacement. Trials : *La Galissonnière* (8 hours) 96,000 = 35·42 ; *Jean de Vienne* has also exceeded 35 kts. ; *Montcalm*, 35·7 ; *Marseillaise*, 36·1. Sea speed about 30 kts. Fuel consumption reported to be exceptionally low in this class.

## **EMILE BERTIN,** (Penhoët, St. Nazaire.) (May 9, 1933).

Displacement: 5,886 tons. Complement: 567. Length: (*p.p.*) 548 feet, (*o.a.*) 580¾ feet. Beam: 51¾ feet. Draught: 17¾ feet (*max.*).



1935, *courtesy Mons. H. le Masson.*

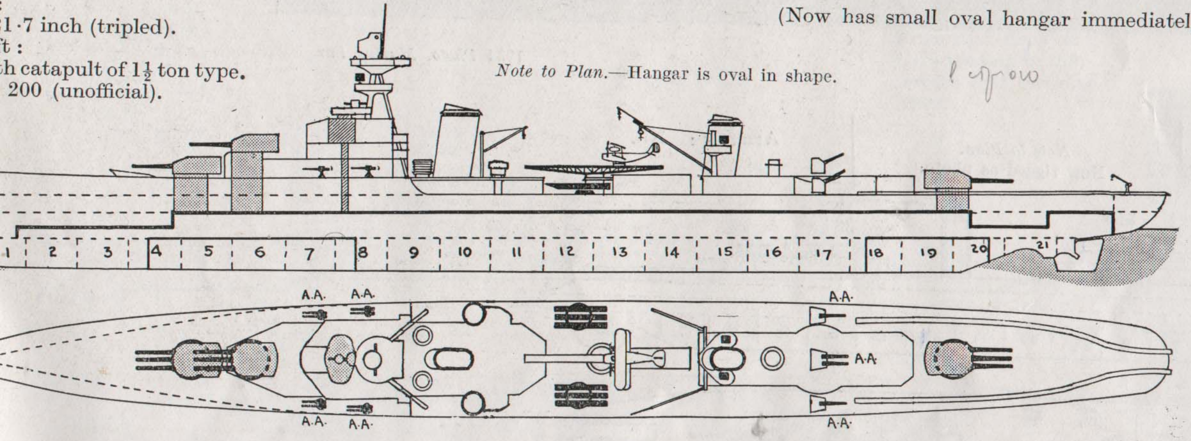
(Now has small oval hangar immediately forward of second funnel.)

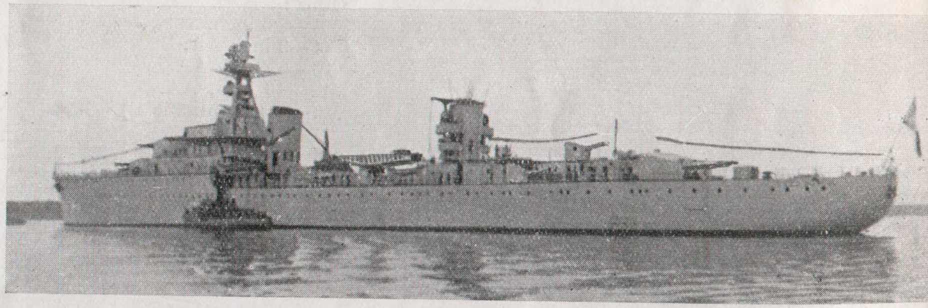
Armour:
1″–2″ Deck.

inch.
·5 inch. AA. 6-40
7 m/m. AA. 20-20
3 m/m. AA.
:
1·7 inch (tripled).
t:
h catapult of 1½ ton type.
200 (unofficial).

*Note to Plan.*—Hangar is oval in shape.

l appro





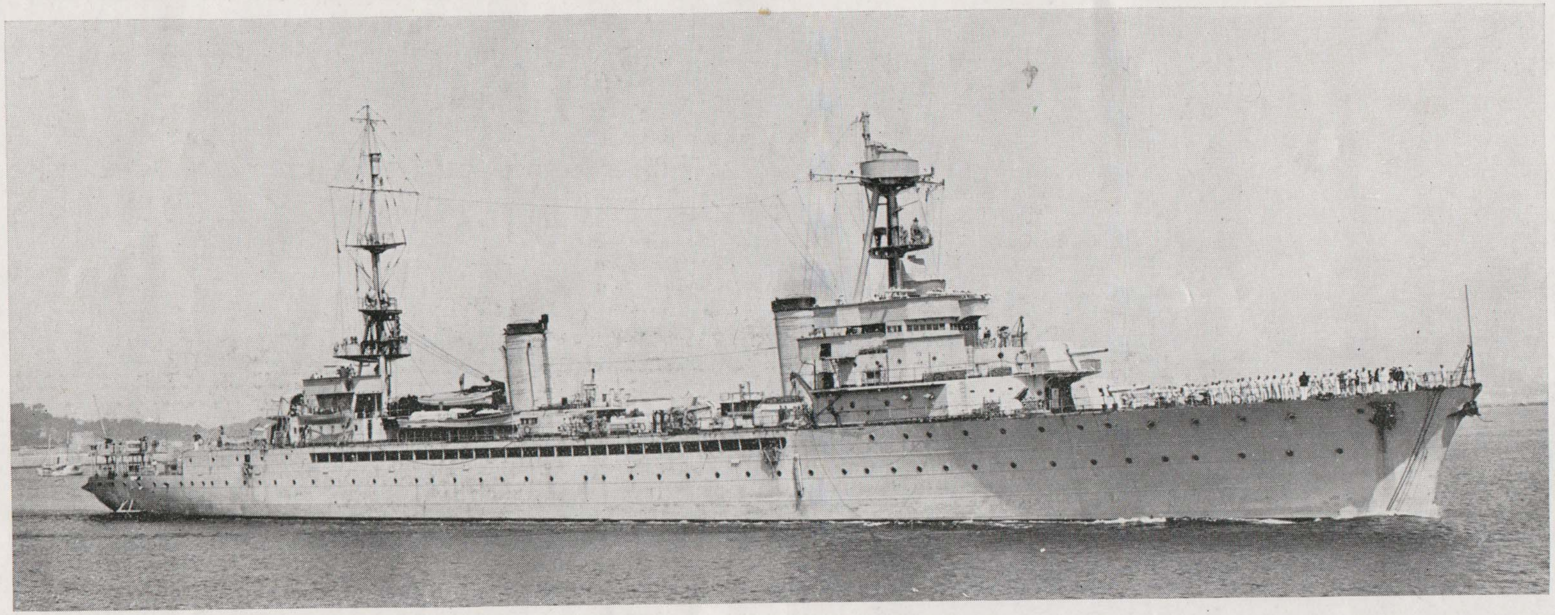
1934 *Photo, Capt. M. Ada*

Machinery: Parsons geared Turbines. 4 shafts. S.H.P.: 102,000=34 kts. Boilers: 6 Penhoët.
Oil Fuel: 1,400 tons.

*Notes.*—Authorised under the 1930 Programme. Laid down 1931. Completed in 1934. The triple mounting makes its first appearance in the French Navy in this ship. Originally intended to be merely an improved *Pluton*, a new design was ultimately evolved, in which cruiser characteristics were in no way subordinated to minelaying considerations. On trials, the ship exceeded expectations, maintaining 37 kts. for an hour in a 13 ft. swell. Maximum power and speed on trials, 120,000 = 39·8 kts. Hull strengthened beneath turrets to permit salvo firing, 1935.

## † PLUTON (April 10th, 1929). 13.03.39 взрыв собств. мин.

Displacement, 4,773 tons. Complement, 397. Length, (p.p.) 472½ feet, (o.a.) 500⅓ feet. Beam, 51 feet.
Draught, 17 feet (*mean*), 20 feet (*max.*).



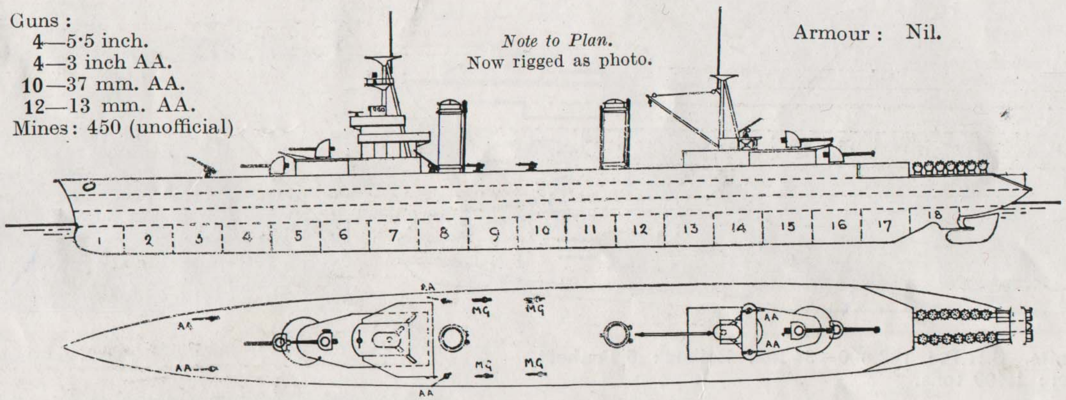
PLUTON.

1934 *Photo, Marius Bar.*

Guns :
4—5·5 inch.
4—3 inch AA.
10—37 mm. AA.
12—13 mm. AA.
Mines: 450 (unofficial)

*Note to Plan.*
Now rigged as photo.

Armour : Nil.

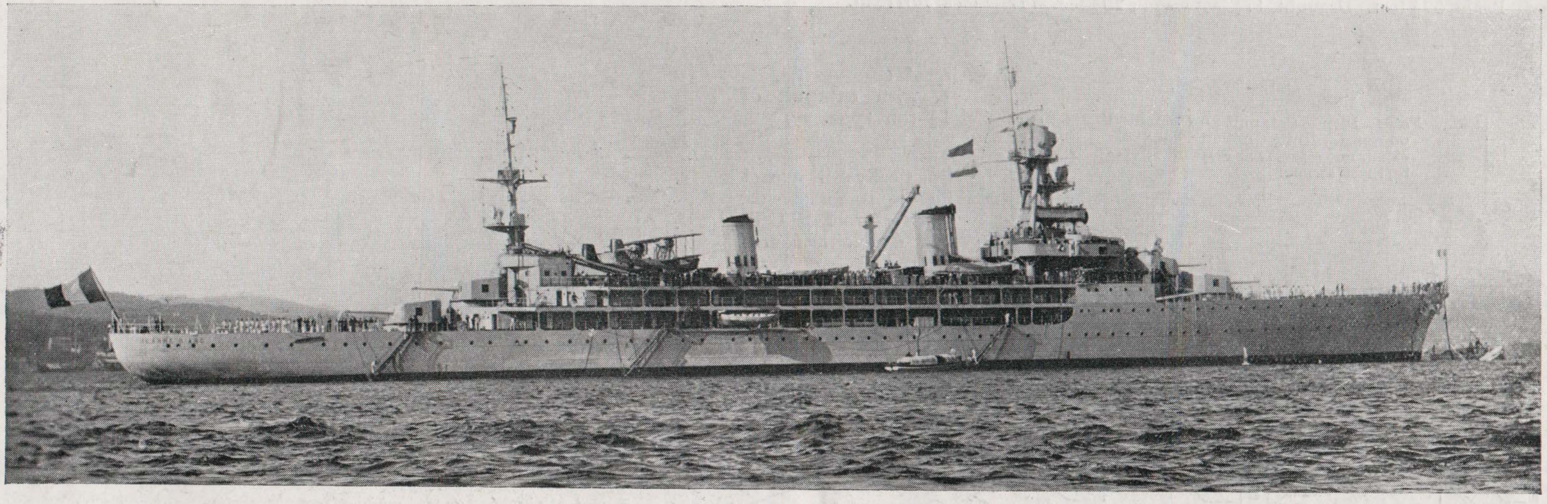


Machinery : 2 Breguet geared turbines. 2 shafts. S.H.P. 57,000=30 kts. Oil : 1,200 tons.
Boilers : 4 small tube.

*Note.*—Authorised under 1925 Programme, and laid down at Lorient Dockyard in April, 1928, completed April, 1931.
Trials: H.P., 56,000=30·6 kts. Max. speed 31·6 kts.

## JEANNE D'ARC (Penhoët, St. Nazaire.) (Feb. 14th, 1930.)

*Standard* Displacement : 6,496 tons. Complement : 505.
Length (*p.p.*), 525 feet ; (*o.a.*), 557¾ feet. Beam, 57½ feet. Draught, 17¾ feet (*mean*) ; 20⅔ feet (*max.*).



1934 *Photo.*

в строю

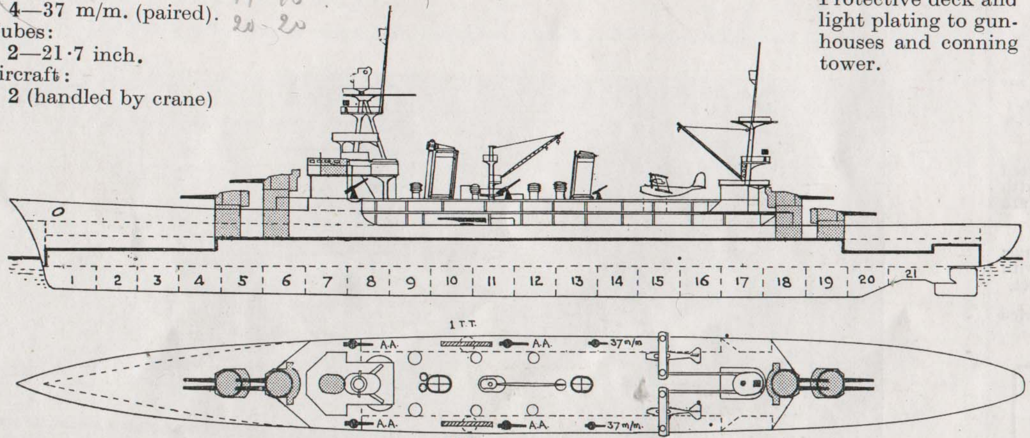
Guns :
- 8—6·1 inch.
- 4—3 inch AA.
- 4—37 m/m. (paired). 14-40 20-20

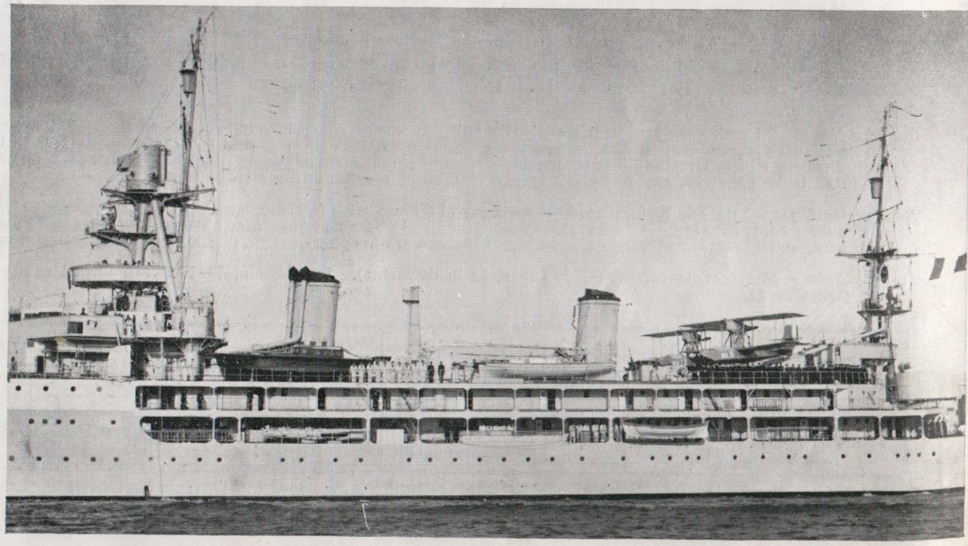
Tubes:
- 2—21·7 inch.

Aircraft :
- 2 (handled by crane)

Armour : Nil.

Protective deck and light plating to gun-houses and conning tower.





1937, *Wright & Logan.*

Machinery : Parsons geared turbines. 2 shafts. Designed H.P. : 32,500 = 25 kts. Boilers : 4 Penhoët. Oil : 1,400 tons. Radius : 5,000 miles at cruising speed (14—15 kts.).

*General Notes.*—Original design provided for 2 catapults, but as completed she is without any. Can accommodate 156 midshipmen and cadets and 20 instructional officers, in addition to ordinary complement. Authorised under 1927 Programme and laid down at Penhoët Yard, St. Nazaire in 1928. Completed in 1931.
*Trials* :—3 hours' full power : 39,200 H.P. = 27·84 kts.

(DUGUAY-TROUIN CLASS—~~3~~ SHIPS.)

**DUGUAY-TROUIN** (14th Aug., 1923), **LAMOTTE-PICQUET** (21st March, 1924), **PRIMAUGUET** (21st May, 1924).

Standard displacement, 7,249 tons. Normal displacement, 7,880 tons. (*Full load*, 9,350.) Complement, 577. Length (*p.p*) 575 feet, (*o.a.*) 594¾ feet. Beam, 57½ feet. Draught, 17¼ feet *mean*; 20⅔ feet *maximum* at full load.

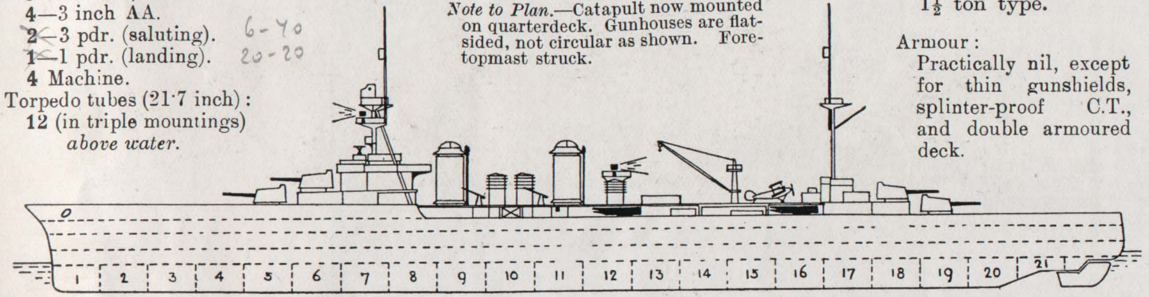
Guns:
- 8—6·1 inch, 50 cal.
- 4—3 inch AA.
- ~~2~~—3 pdr. (saluting). 6-40
- ~~1~~—1 pdr. (landing). 20-20
- 4 Machine.

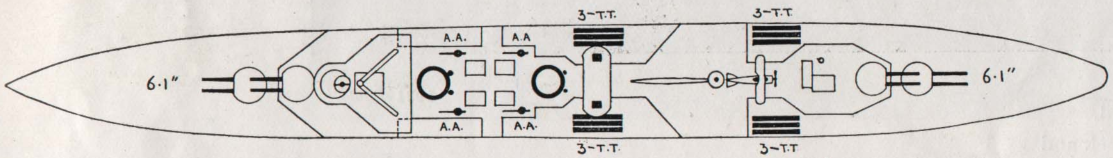
Torpedo tubes (21·7 inch):
- 12 (in triple mountings) *above water*.

*Note to Plan.*—Catapult now mounted on quarterdeck. Gunhouses are flat-sided, not circular as shown. Foretopmast struck.

Aircraft:
- 1, with catapult of 1½ ton type.

Armour:
- Practically nil, except for thin gunshields, splinter-proof C.T., and double armoured deck.





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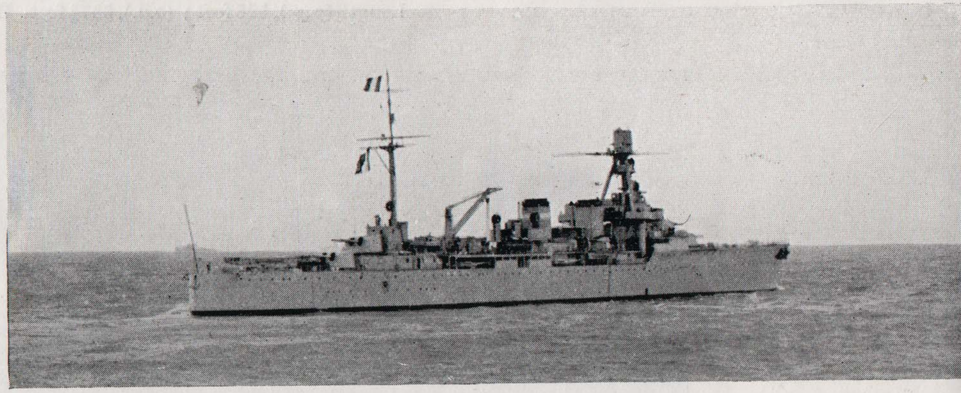


DUGUAY-TROUIN. 1936, *M. Le Masson.*

Machinery: 4 Parsons geared turbines. Boilers: 8 Guyot. Designed S.H.P. 102,000 = 33 kts. 4 screws. Oil: 500 tons *normal*, 1500 tons *maximum*. Radius: 880 miles at 33 kts.; 1290 at 30; 3000 at 20; 4500 at 15. Depth charges carried.

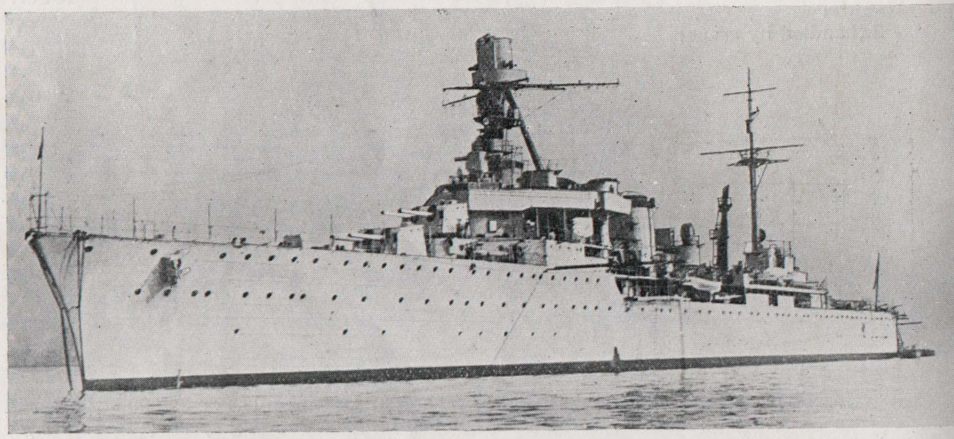
*Gunnery Notes.*—6·1 inch guns are 1920 model with ballistic powers superior to old marks of 7·6 inch. Range reported to be 28,000 yards, elevation 35°. Reason for adoption of this calibre is said to have been its uniformity with Army type 6·1 inch, simplifying munition supply, more particularly of gas and incendiary shells. Gunhouses are reported to be gas-tight, and to have a special method of ventilation by forced draught.

*Engineering Notes.*—Trial results tabulated are averages of 6 hours with full complement of fuel and stores. *Maximum* speed for 1 hour, 34·5 kts. All three ships maintained 30 kts. for 24 hours' continuous steaming at half power with full load, and have proved very economical. Excellent sea-keeping qualities. Heating surface, 13,209 sq. feet.

*Torpedo Notes.*—24 torpedoes carried (12 in tubes, 12 in magazine). In addition, 4—17·7 inch torpedoes are carried for picket boats.

| *Name.* | *Builder.* | *Machinery.* | *Laid down.* | *Completed.* | *Trials. (6 hours)* | |
|---|---|---|---|---|---|---|
| *Duguay-Trouin* | Brest | F. & C. de la Méd. | 4-Aug., '22 | 10 Sep. '26 | 116,235 = 33·6 | |
| *Primauguet* | Brest | A & C. de la Loire | 10 Aug., '23 | 1 Oct. '26 | 116,849 = 33·06 | |
| *Lamotte-Picquet* | Lorient | C. & A. de St. Nazaire (Penhoët). | 17 Jan., '23 | 1 Sep. '26 | 115,100 = 33·04 | |

*General Notes.*—These ships have shown excellent sea-going qualities. *Primauguet* was given a big refit at Lorient in 1937.



LAMOTTE-PICQUET. 1935, *Capitaine M. Adam.*

КрЛ Chatourenon – б. итал. Attilio Regolo }
Guichen – б итал Scipione Africano } см стр 273
? – б итал Pompeo Magno – не в строю

## ~~8~~ + *3* (*projected*) Le Hardi class.

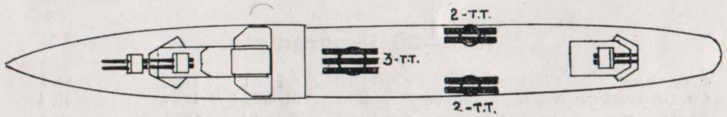
8 +8 building

*Building.*

2 *A. et C. de la Loire :* **Le Hardi, Mameluck.**
2 *F. et C. de la Gironde :* **Epée, Lansquenet.**
4 *F. et C. de la Mediterranée* (*La Seyne*) *:* **Casque, Fleuret, Le Corsaire, Le Flibustier.**
3 *to be built* under 1938 Programme.

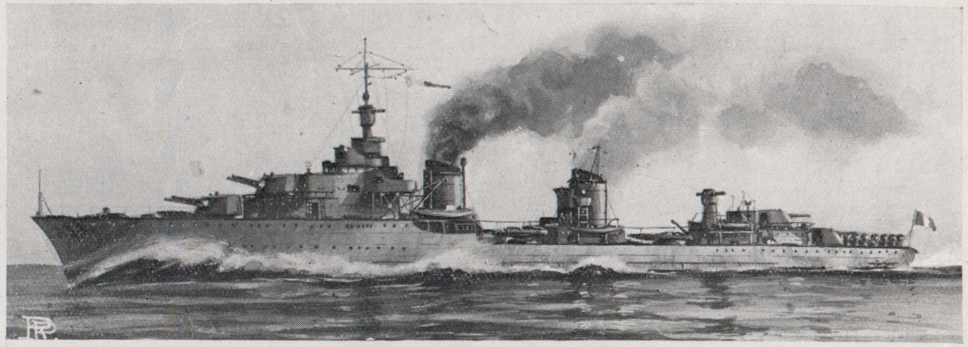
*Standard* displacement : 1,772 tons. Complement :
Dimensions : 333⅓ × 32½ × 11 feet (*mean*).
Guns : **6**—5·1 inch, **4**—37 mm. AA., **4**—13 mm. AA.
Tubes : **7**—21·7 inch.
Machinery : Parsons geared turbines in all except *Epée, Lansquenet, Fleuret, Le Flibustier*, which have Rateau. S.H.P. : 58,000 = 37 kts.
Boilers : Indret small tube.

*Notes.—Le Hardi* laid down end 1935, under 1932 Programme. *Epée, Fleuret* (both 1935 Programme), laid down 1936. Others, belonging to 1936 and 1937 Programmes, were all laid down in latter year. First 3 to be launched by end of 1937. Cost Fcs. 84,000,000 each.

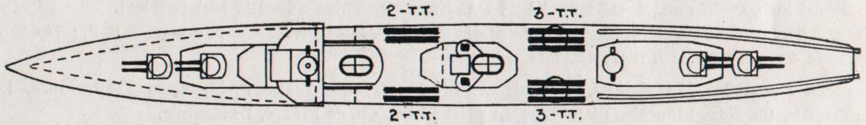


*Note to plan.*—Exact positions of 5·1 in. guns uncertain.

## 2 Mogador class.



1937 *Illustration.*



**Mogador.** Lorient. (June 9, 1937).

**Volta.** Ch. de Bretagne. (Nov. 26, 1936).

Displacement : 2,884 tons. (About 3,500 tons full load.) Complement : 240.
Dimensions : 451 × 41 × 14¾ feet (*mean*).
Guns : **8**—5·5 inch, **4**—37 mm. AA., **4**—13 mm. AA., 4 D.C.T.
Tubes : **10**—21·7 inch (2 triple mounts and 2 pairs).
Machinery : Rateau geared turbines. S.H.P. : 90,000 = 38 kts. Boilers : 6 Indret small tube. Oil fuel : 630 tons.

*Note.—Mogador* belongs to 1932 Programme, *Volta* 1934 ; laid down Dec. 1934 and Jan., 1935 respectively. *Mogador* commissioned for trials at end of October, 1937. It is expected that her designed speed will be greatly exceeded.

*Gunnery Notes.*—5·5 inch are of a new model, semi-automatic, and have a range of 25,000 yards. A rate of fire of 16 rounds a minute can be maintained.

ЭМ Hoche — в Герм Z-25
Marceau в Герм Z-31
? в Герм Z-39
Desaix в Герм Paul Jacobi
Kléber в Герм Theodor Riedel
} см стр 235
Duchaffault в Итал Legionario
Furie La Graviere в Итал Alfragliere
Duperre в Итал Velite
D'Estaing в Итал Alfredo Oriani
} см стр 278

## ~~6~~ 4 Fantasque Class. *1930 Programme.*

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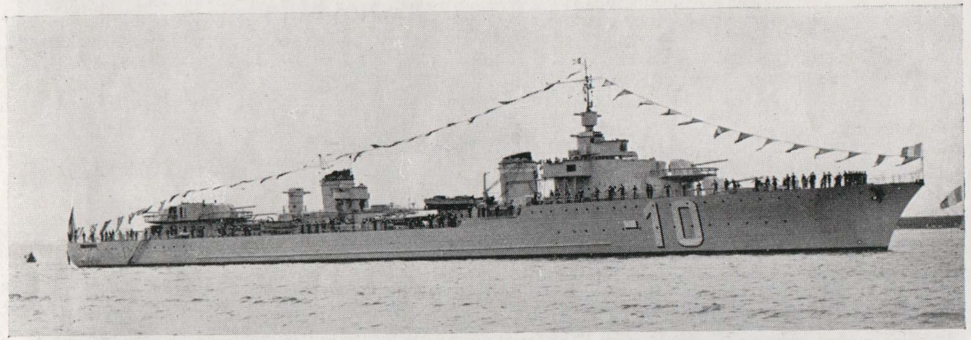


Le Fantasque. 1936, *favour Mons. H. Le Masson.*

| | | | |
|---|---|---|---|
| **Le Fantasque**<br>+ **L'Audacieux** | (Both March 15, 1934). | **Le Terrible** | (Nov. 29, 1933). |
| | | **Le Triomphant** | (April 16, 1934). |
| **Le Malin** | (Aug. 17, 1933). | + **L'Indomptable** | (Dec. 7, 1933). |

Displacement: 2,569 tons (3,230 tons *full load*). Complement: 220.

Dimensions: 411½ (*p.p.*), 434⅓ (*o.a.*) × 39⅓ × 14 feet (*mean*).

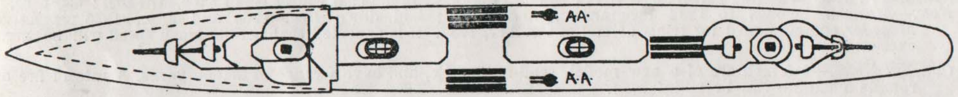
Guns: 5—5·5 inch, ~~4~~ 8-40 —37 mm., ~~4~~ 10-30 —13 mm. AA., 4 D.C. throwers. Tubes: ~~9~~ 6 —21·7 inch (tripled).

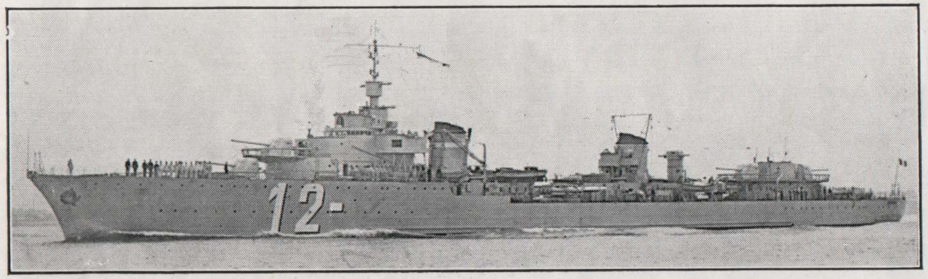
Machinery: 2 sets geared turbines, Parsons in *Le Malin* and *L'Indomptable*, Rateau in others. S.H.P.: 74,000 = 37 kts. Boilers: 4 small tube. Oil fuel: 650 *tons.*

*Builders: Le Fantasque, L'Audacieux,* Lorient; *Le Malin, L'Indomptable,* F. Ch. de la Mediterranée, La Seyne; *Le Terrible,* Ch. Nav. Français, Blainville; *Le Triomphant,* Ch. de France, Dunkerque.

*Notes.*—On trials, *Le Terrible* is reported to have reached record speed of 45·25 kts. All the ships of this class exceeded 43 kts. with 100,000 H.P.

*Appearance Notes.*—No mainmast in these ships, w.t. aerials being slung from brackets on second funnel. Very conspicuous control platform abaft the second funnel.





Le Terrible. 1936, *courtesy Builders.*

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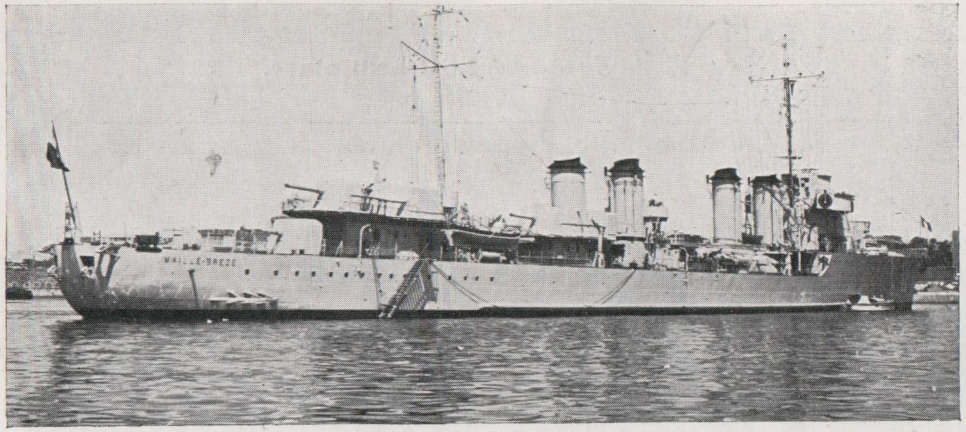
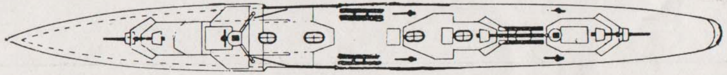
3)
4)
5) } в строю легкие крейсера
модернизир. 44 США



Maillé Brézé (and other 5 of *Cassard* class). 1933 *Photo, Capt. M. Adam*



Milan, Epervier and Cassard group.

## ~~12~~ 1 AIGLE Class.

### 1927 Programme.

| | | | | | |
|---|---|---|---|---|---|
| X **Aigle** | Ch. France | '29 | 19/2/31 | 1932 | |
| **Albatros** | Ch. Loire | '29 | 28/6/30 | 1931 | 87,000 = 41·9 |
| **Epervier** | Lorient | 6/30 | 14/8/31 | 1933 | = 42·6 |
| **Gerfaut** | Ch. Bretagne | '29 | 14/6/30 | 1932 | = 42·78 |
| **Milan** | Lorient | 6/30 | 13/10/31 | 1933 | 83,000 = 43·4 |
| **Vautour** | F. C. Med. Havre | '29 | 26/8/30 | 1932 | 80,000 = 40·2 |

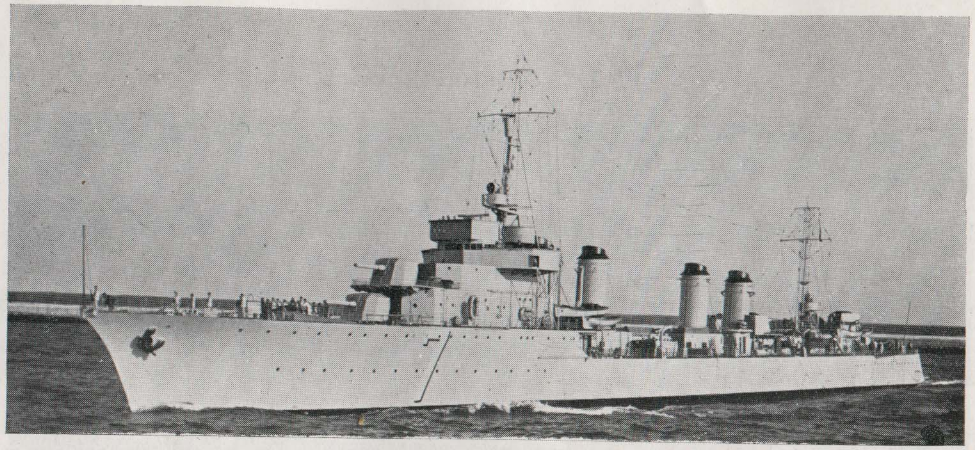
2) —

Dimensions: 423¼ × 40 × 16 feet.

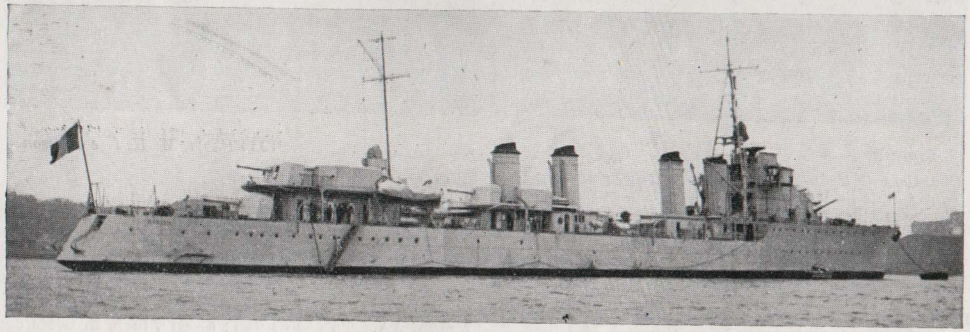
### 1928—29 Programme.

| | | | | | |
|---|---|---|---|---|---|
| **Cassard** | Ch. Bretagne | 11/30 | 8/11/31 | 1932 | = 43·4 |
| **Le Chevalier Paul** | La Seyne | 2/31 | 21/3/32 | 1934 | = 40·4 |
| **Maillé Brézé** | Penhoët | 10/30 | 9/11/31 | 1932 | = 42·0 |
| **Kersaint** | Ch. Loire | 9/30 | 14/11/31 | 1933 | |
| **Tartu** | Ch. Loire | '30 | 7/12/31 | 1932 | = 41·02 |
| **Vauquelin** | Ch. France | 3/30 | 29/9/32 | 1933 | |

Dimensions: 424¼ × 39 × 15¾ feet.
All 12: Displacement: 2,441 tons. (3,090 tons full load.)
Machinery: 2 sets geared turbines. Parsons in *Kersaint, Tartu, M. Brézé, Milan, Albatros, Vautour* and *Ch. Pàul.* Zoelly-Fives-Lille in *Aigle* and *Vauquelin.* Rateau-Bretagne in *Epervier, Gerfaut* and *Cassard.*
Boilers: 4 small tube, Yarrow or Penhoët.
S.H.P. 64,000 = 36 kts (68,000 = 37 kts. in *Milan* and *Epervier*).
Oil: 650 tons. Radius: 2,500—3,000 miles at 18 kts.
Complement: 220.
Armament: Guns: **5**—5·5 inch, **4**—37 m/m., **4**—D.C. Throwers. 4-13
Tubes: **6**—21·7 inch (7 in *Epervier, Milan*).



*Added* 1937, Grand Studio.



BISON.

1931 *Photo, Capt. M. Adam.*

## ~~6~~ GUÉPARD Class.

### 1925 Programme.

| | *Builders.* | *Begun.* | *Launched.* | *Compl.* | *Max. Speed* |
|---|---|---|---|---|---|
| **Bison** | Lorient | Feb. '27 | 29/10/28 | 1930 | =40·6 |
| **Guépard** | | | 19/4/28 | 1929 | 69,100=38·4 |
| **Lion** | Ch. France | Apl.'27 | 5/8/29 | 1931 | =40·4 |

[illegible]

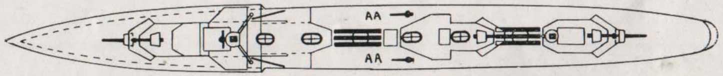
Dimensions: 427 × 38¾ × 15¾ feet.

### 1926 Programme.

| | | | | | |
|---|---|---|---|---|---|
| **Vauban** | Ch. France | '27 | 1/2/29 | 1931 | =40·2 |
| **Valmy** | Penhoët | '27 | 19/5/29 | 1930 | 69,300=39·8 |
| **Verdun** | Ch. Loire | '27 | 4/7/28 | 1930 | 72,400=40·1 |

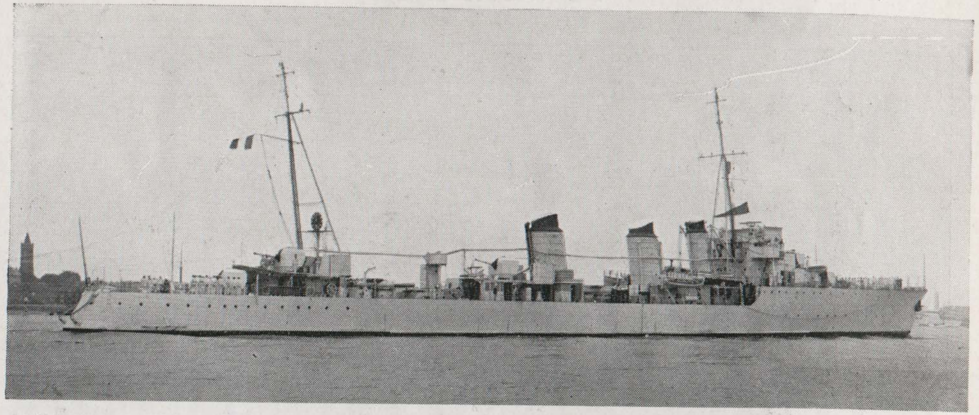
Dimensions: 427 × 39 × 16¾ feet.
All 6: Displacement: 2,436 tons. About 3,080 tons full load.
Complement: 209.
Guns: 5—5·5 inch. 4—37 m/m. 4—D.C. Throwers. Tubes: 6—21·7 inch.
S.H.P. 64,000=36 kts. Oil: 500-650 tons. Radius: 3,000 miles at 18 kts.
Turbines: Parsons in *Valmy, Verdun, Guépard* and *Bison*. Zoelly-Fives-Lille in *Vauban* and *Lion*.

Average speed at normal displacement and designed H.P.
*Guépard* 35·9 *Valmy* 37 *Verdun* 36·7 *Bison* 36·5



GUÉPARD CLASS.
ALSO AIGLE, ALBATROS, GERFAUT, VAUTOUR.

## ~~6~~ 1 Chacal Class.



LÉOPARD

1936, *Wright & Logan.*

### 1922 Programme

| | | *Begun.* | *Launched.* | *Compl.* | *Trials.* |
|---|---|---|---|---|---|
| **Jaguar** | Lorient Dockyard | 1922 | 6/11/23 | 1926 | 52,000=34·7 |
| **Panthère** | | | 28/10/24 | 1926 | =35·5 |
| **Léopard** .. | Ch. de Loire St. Nazaire | | 29/9/24 | 1927 | |
| **Lynx** .. | | | 25/2/25 | 1927 | =35·5 |
| **Chacal** .. | Penhoët | | 27/9/24 | 1926 | 52,000=36 1 |
| **Tigre** .. | Ch. de Bretagne Nantes. | | 2/8/24 | 1926 | 58,000=36·7 |

6) l c
4-130
1-40
8-20
3-550 To

Displacement: 2,126 tons; 2,700 tons full load. Complement: 204.

Dimensions: 392¾ (*p.p.*), 416 (*o.a.*) × 37½ × 17⅓ feet (*max.*)

Guns: 5—5·1 inch.
8—13 mm. AA.
4—D.C. Throwers.

Tubes: 6—21·7 inch.

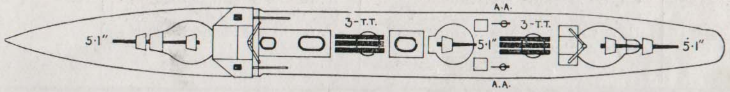
Oil: 250/550 tons.
Radius: 3,500 miles at 15 kts.
2,500 „ „ 18 „
900 „ „ full speed.

S.H.P. 55,000=35·5 kts. Breguet-Loire turbines (*Léopard* and *Lynx*). Rateau-Bretagne in other four. 5 small tube Du Temple boilers.

Average speed at normal displacement and H.P.

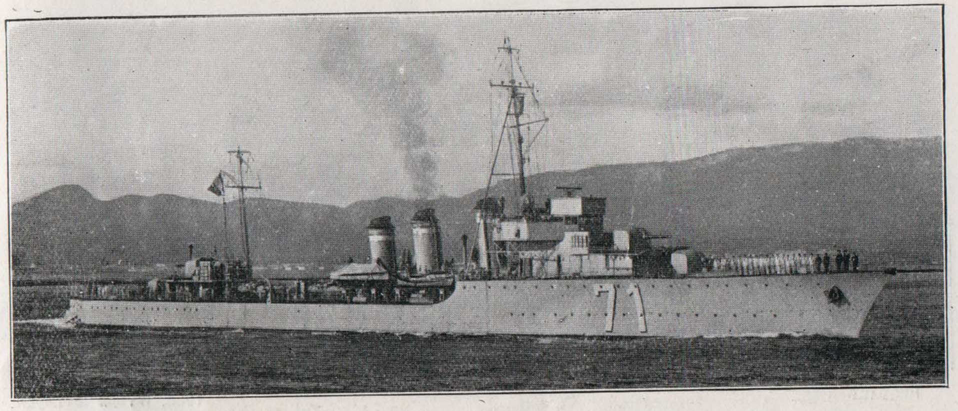
| | |
|---|---|
| *Jaguar* 34·2 | *Chacal* 34·7 |
| *Panthère* 35·3 | *Tigre* 35·9 |
| *Léopard* 34·9 | *Lynx* 34·5 |

*Note to Plan:*—Additional AA. gun positions not indicated.



*Note.*—Classified on a tonnage basis these ships, and those of *Guépard*, *Aigle* and *Fantasque* classes, would rank as cruisers by Washington Treaty rules, being above 2,000 tons standard displacement. They are mostly employed in divisions and not as flotilla leaders.

### ~~14~~ 4 Adroit Class.



LE MARS. 1929 *Photo, M. Bar, Toulon.*

**L'Adroit** (April 1st, 1927).

**Le Fortuné** (Nov. 15, 1926), **Le Mars** (Aug. 28, 1926).

**La Palme** (June 30th, 1926), **La Railleuse** (Sept. 9th, 1926).

**L'Alcyon** (June 26th, 1926). (Launched at Harfleur and towed to Bordeaux for completion.)

**Basque** (May 25th, 1929). **Bordelais** (May 23rd, 1928), **Boulonnais** (June 1st, 1927), **Brestois** (May 18th, 1927).

**Forbin** (July 17th, 1928), **Foudroyant** (April 24th, 1929), **Fougueux** (Aug. 4th, 1928), **Frondeur** (June 20th, 1929).

Displacement: 1378 tons *standard*, 1495 tons *normal* (*about* 1750 *full load*). Dimensions: 330·9 × 32¼ × 9½ feet. Complement, 140. Guns: **4**—5·1 inch, **2**—37 m/m. AA. Torpedo tubes: **6**—21·7 inch, in triple deck mountings. 2 sets geared turbines of Zoelly type in *Adroit* and *Alcyon, Bordelais, Fougueux, Frondeur*. Rateau-Bretagne in *Basque*. Parsons in remainder. H.P. 32,000–35,000 = 32–33·5 kts. Other particulars similar to those of *Simoun* class, but slightly increased boiler power to give improved speed. On trials *Brestois* reached 34·5 kts., *Fougueux* 36·4 (both *max.*). 16 Depth Charges carried.

*Note.*—Ordered under Programmes of 1924 (first six), 1925 (next four), and 1926 (last four). As compared with *Simoun* type, these vessels possess improved stability, higher rate of salvo firing, better aerial defence and lower fuel consumption. 5·1 inch guns said to possess a range of 19,000 yards, and can fire eight rounds a minute.

| *Name* | *Builders* | *Engines* | *Begun* | *Completed* |
|---|---|---|---|---|
| *L'Adroit* | Ch. de France, Dunkerque | Fives, Lille | 1925 | 1928 |
| *L'Alcyon* | Ch. de la Gironde | Ch. de la Gironde | | 1927 |
| *Le Fortuné* | Ch. Navals Français, Blainville | A. & Ch. de la Loire | | Sept., 1927 |
| *Le Mars* | Ch. Navals Français, Blainville | A. & Ch. de la Loire | | April, 1927 |
| *La Palme* | Ch. Dubigeon, Nantes | A. & Ch. de la Loire | | 1927 |
| *La Railleuse* | Ch. Dubigeon, Nantes | A. & Ch. de la Loire | | 1927 |
| *Brestois* | Ch. Navals Français, Blainville | A. & Ch. de la Loire | Sept., 1926 | 1928-29 |
| *Boulonnais* | Ch. Navals Français, Blainville | A. & Ch. de la Loire | | |
| *Basque* | Ch. de la Seine Maritime | A. & Ch. de Bretagne | | |
| *Bordelais* | Ch. de la Gironde, Bordeaux | Ch. de la Gironde | | |
| *Forbin* | F. & Ch. de la Med., Havre | F. & Ch. de la Med. | 1927 | 1929 |
| *Foudroyant* | Dyle & Bacalan, Bordeaux | | | |
| *Fougueux* | A. & Ch. de Bretagne, Nantes | A. & Ch. de Bretagne | | |
| *Frondeur* | Ch. Navals Français, Blainville | A. & Ch. de la Loire | | |

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в строю миноносцы
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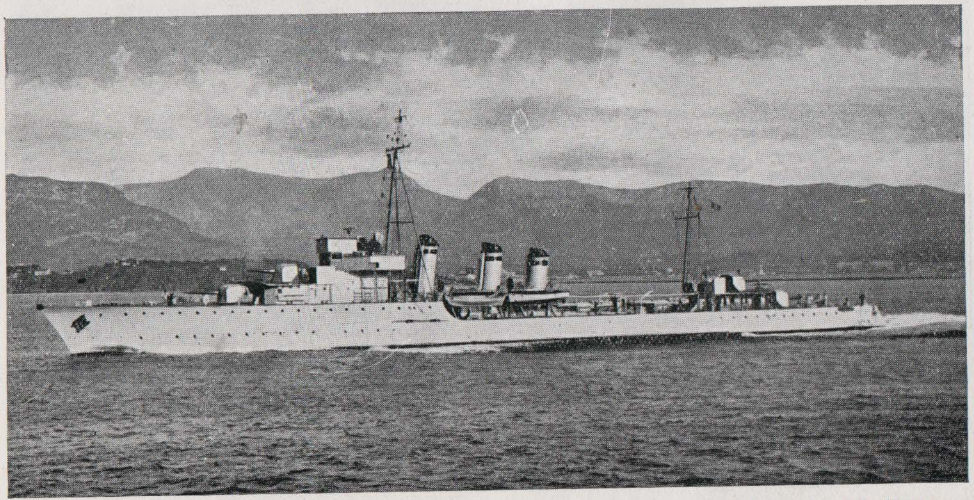
### 12 5 Simoun Class.



1930 *Photo, M. H. le Masson.*

SIMOUN.

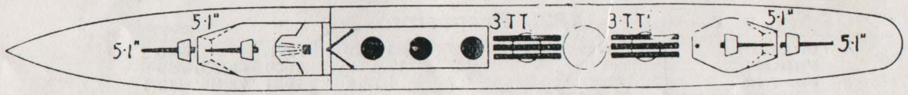
1 *Chantiers de France (Dunkerque)*: **Bourrasque** (Aug. 5th, 1925).
2 *F. & Ch. de la Méditerranée (Havre)*: **Cyclone** (Jan. 24th, 1925), **Mistral** (June 6th, 1925).
2 *Ch. Navals Français (Blainville).* **Orage** (Aug. 30th, 1924). **Ouragan** (Dec. 6th, 1924).
2 *A. & Ch. de St. Nazaire (Penhoët)*: **Simoun** (June 3rd, 1924), **Siroco** (October 3rd, 1925).

1 *Ch. Dubigeon*: **Tempête** (Feb. 21st, 1925).
3 *Ch. de la Gironde*: **Tramontane** (Nov. 29th, 1924), **Typhon** (May 22nd, 1924), **Trombe** (Dec. 29th, 1925).
1 *Dyle & Bacalan*: **Tornade** (March 12th, 1925).

Displacement: 1319 tons *standard*, 1458 tons *normal*, 1727 tons *full load*. Dimensions: 326 (*p.p.*), 347 (*o.a.*) × 33 × 13¾ feet. Complement: 138. Guns: **4**—5·1 inch, **2**—37 m/m. AA. Torpedo tubes: **6**—21·7 inch, in triple deck mountings. Geared turbines of Rateau type in *Orage* and *Ouragan*; Zoelly in *Typhon, Tramontane* and *Trombe*; Parsons in other seven boats. H.P. 33,000 = 33 kts. (over 34 reached on trials). Boilers: 3 small tube. 2 screws. Oil: 165 tons *normal*, 350 tons *max*. Radius: 3,000 miles at 15 kts.

*Notes.*—Authorised by Law of 18th August, 1922. 8 hours' trials: *Orage*, 34,000 = 33·8 kts.; *Simoun*, 29,000 = 33·2 kts. (1 hour = 34·3); *Ouragan*, 35,000 = 34·4; *Bourrasque*, = 34·12 (36·4 for one hour); *Mistral* (12 hours), 34 kts. All completed 1926-27. It has been stated that these vessels lose their speed rapidly in a seaway, and that few, if any, of them can now make designed speed. All had funnels cut down by about 3 feet to improve stability, soon after completion.

*Gunnery Notes.*—*Siroco* has been fitted experimentally with larger gun shields.



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29 уз

(Classed as *Torpilleurs Légers*)

## ~~4~~ + ~~2~~ (*projected*) Agile Class

Building

2 *At. et Ch. de Bretagne* : ***L'Agile, Le Fier.***
2 *At. et Ch. de la Loire* : ***L'Entreprenant, Le Farouche.***
2 *to be built* under 1938 Programme.
Displacement : 1,000 tons.
Dimensions : 295¼ × 30½ × 8½ feet.
Guns : **4**—3·9 inch, **4**—40 mm. AA. Tubes : **4**—21·7 inch (paired).
Machinery : Geared turbines. S.H.P. : 28,000 = 34 kts.
*Note.*—First 4 autnorised under 1937 Programme and laid down same year.

Нет в строю

Alsacien б Герм T-23
Lorrain б Герм T-28
Baccarat б Герм T-4
Bir Hakeim б Герм T-11
Dompaire б Герм T-14
? б Герм T-19
? б Герм T-20
См стр 236

Эскортн. Миноносцы
Algérien
Hova
Somali
Marocain
Sénégalais
Tunisien
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тип 44
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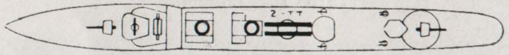
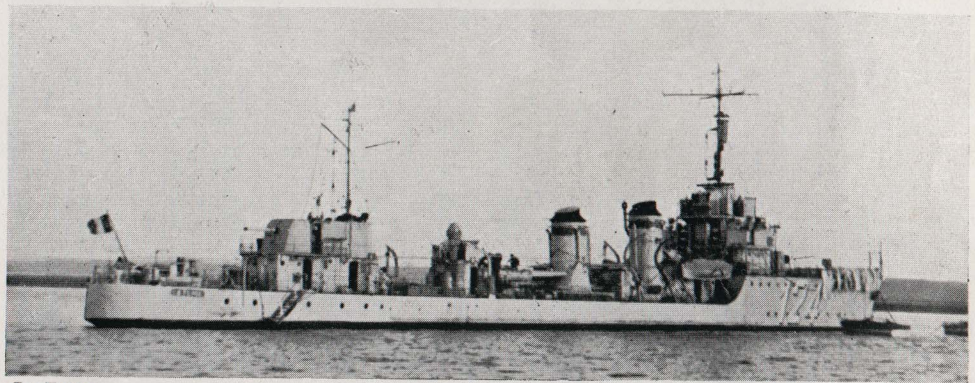
3-76 1-40 12-20

## ~~12~~ 5 Pomone Class.





La Flore. 1937, *Capt. M. Adam.*

1) 3) 6) 8) 12)

12 boats: ***La Melpomène*** (Ch. de Bretagne, Nantes, 24 Jan. 1935)
×***La Pomone*** (Ch. de Loire, Nantes, 25 Jan., 1935)
***La Flore*** (Ch. de Bretagne, Nantes, 4 May, 1935)
×***L'Iphigenie*** (Ch. de Loire, Nantes, 18 April, 1935)
×***La Poursuivante*** (At. et Ch. de France, Dunkerque 4 Aug., 1936)
***L'Incomprise*** (Ch. Worms, Rouen, April 14, 1937)
×***La Bayonnaise*** (Ch. Sud Ouest, Bordeaux, Jan. 28, 1936)
×***La Cordélière*** (Sept. 9, 1936) } (Augustin Normand)
×***Branlebas*** (April 12, 1937) } (Augustin Normand)
×***Bombarde*** (At. et Ch. de la Loire, Nantes, March 23, 1936)
×***Baliste*** (At. et Ch. de France, Dunkerque March 17th, 1937)
***Bouclier*** (Ch. Worms, Rouen, Aug. 9. 1937)

Provided for under 1931 and 1932, Programmes.

Displacement : 608 tons (700 tons *full load*). Complement,—

Dimensions : 245⅓ (*p.p.*), 264¾ (*o.a.*) × 26 × 9¼ feet (*mean* draught).

Guns : **2**—3·9 inch, **2**—37 m/m., 2 Twin M.G.

Tubes : 2—21·7 inch.

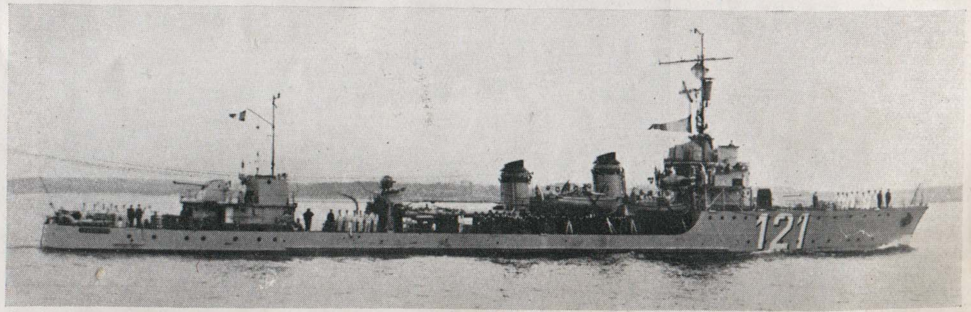
Machinery : Parsons geared turbines in all except *L'Incomprise, Bouclier, Branlebas,* which have Rateau.

H.P. 22,000 = 34·5 kts.

Oil fuel : 90 tons.

Radius : 1,800 at 18 kts. ; 700 at 35 kts.

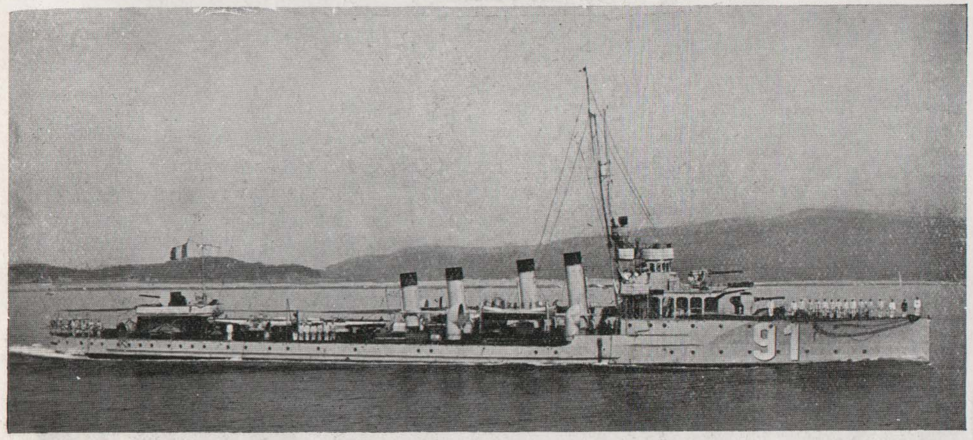
First 4 completed during 1936, second 4 in 1937.



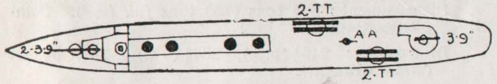
La Pomone. 1937, *courtesy M. Le Masson.*

## 1 Special Boat.

(1913 Programme).



1931 *Photo.*



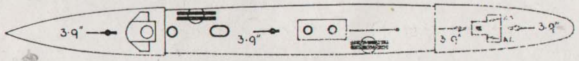
*Note.*—Torpedo tubes now mounted on centre line, *not* as in plan.

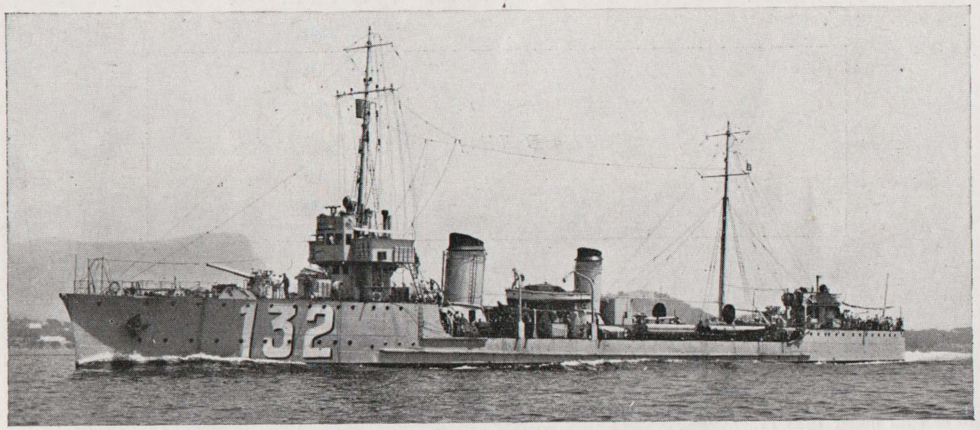
1 *Normand. Havre:* **Enseigne Gabolde** (22nd April, 1921). 802 tons. Dimensions: 271 × 28¼ × 11¾ feet. Armament: **3**—3·9 inch, **1**—3 inch. AA., **4**—21·7 inch torpedo tubes in two twin deck mountings. Designed H.P. 22,000 = 33 knots (reached on trials). Parsons geared turbines. Normand boilers. Fuel: 210 tons oil. Complement: 98.

***Note.***—Begun in December, 1913. Work on this T.B.D. was suspended during the War and not resumed until September, 1918. Completed in summer of 1923 and joined Fleet early in 1924. 6 hours' trial = 32·45 kts. (*max.* 33·45).

## 2 Aventurier type:—Purchased Boats.

(Fitted for Minesweeping).



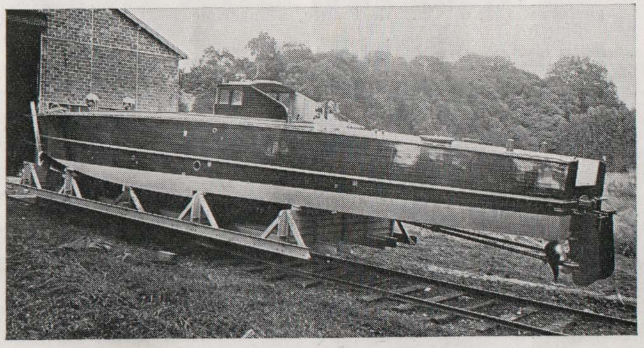


AVENTURIER. (*Intrépide* similar.) 1928 *Photo, M. Dubois.*

2 *Chantiers de Bretagne* (*Nantes*): **Aventurier** (ex-*Salta*), **Intrépide** (ex-*Rioja*), (both 1911). *Standard* displacement: 915 tons; *full load*, 1180 tons. Dimensions: 290⅓ × 28¾ × 8⅝ feet *normal* draught. *Full load* draught, 12 feet. Armament (Schneider-Canet): 4—3·9 inch, 4—18 inch tubes. Designed H.P.: 18,000 = 32 kts. (light); develop 24,000 H.P. = 27 kts. at full load. Machinery: Rateau-Bretagne turbines. *Intrépide* has 3 Schilz-Thornycroft boilers. *Aventurier* has 2 German, 1 Guyot du Temple. Fuel capacity: 280 tons oil. Radius of action: 3,000 miles at 15 kts. Complement: 140.

*Note.*—Built for Argentine Navy and purchased by France immediately before outbreak of war. Refitted 1924-27 and reboilered with boilers out of German Destroyers broken up, and are good now for an average speed of 25·83 kts. Now fitted for minesweeping. *Opiniâtre* scrapped 1933, *Téméraire* 1936.

*Special Note.*—Old torpedo boat No. 349 still exists, but has been relegated to harbour service. She is the sole survivor of a class of 370 boats, of which the French Navy was once very proud.



## Motor Torpedo Boats.

(*Vedettes Torpilleurs à Moteurs*)
All carry 18-inch torpedoes.

**VTB** 11, 12, building under 1937 Programme. Speed, 45 kts. No other particulars advised.

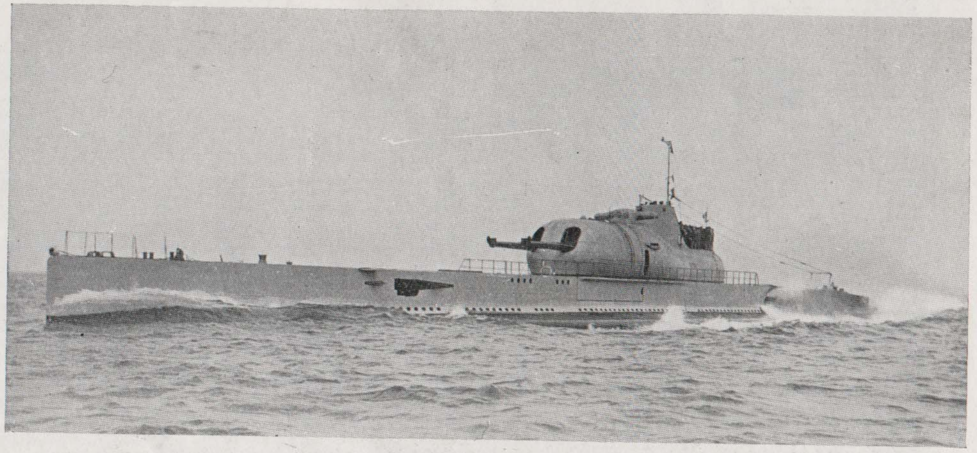
**VTB** 8, 9, 10. (A. C. Loire and Silbur Meulan). 23 tons. Dimensions: 62⅓ × 13 × 9⅓ feet. Two 12-cylinder motors. H.P.: 2,200 = 46 kts. (50 to 55 kts. on trials.) Two Torpedoes fired from twin closed Tubes, stern first. Reported to be exceptionally handy craft.

*Note.*—Earlier vessels now disarmed and relegated to harbour training service and reckoned non-effective.

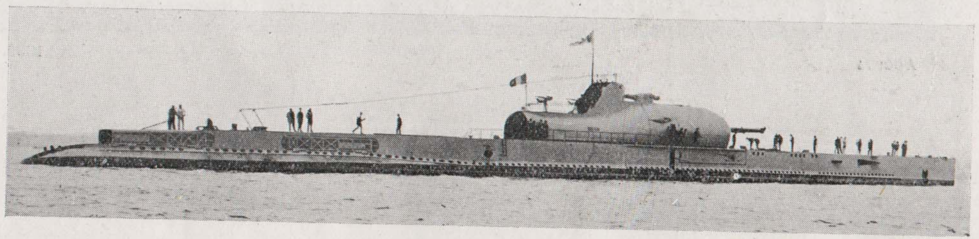
Всего в строю 9 шт
8 – немецкие с
ТВ-13 постр. во Франци

# SUBMARINES—I: FIRST CLASS.

## 1 Cruiser Type.



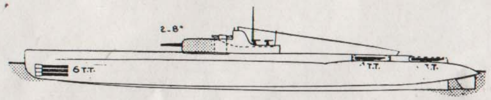
1935.



1932 *Photo.*

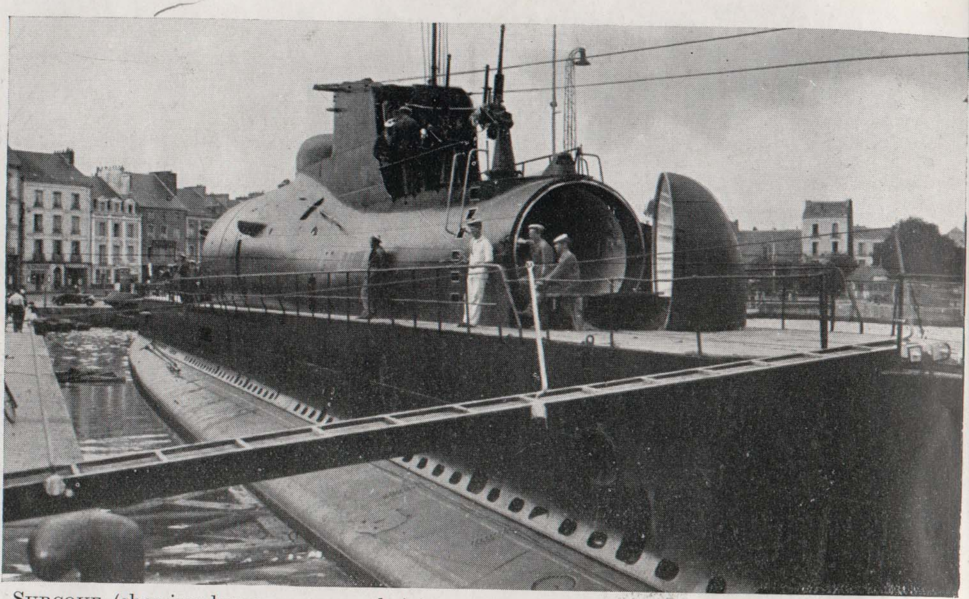
**SURCOUF** (November 18, 1929). Cherbourg. 1926 Programme. Completed 1931.

Displacement : 2,880/4,300 tons.
Complement : 150.
Dimensions : 361 × 29½ × 23½ feet.
Guns : 2—8 inch.
2—37 mm. AA.
4—M.G.
Tubes : 10—21·7 inch.
22 Torpedoes carried.
Aircraft : 1



Machinery : Sulzer Diesels, B.H.P. 7,600 = 18 kts. *surface.*
Electric Motors, H.P.: 3,400 = 10 kts. *submerged.*
Radius : 10,000 miles at 10 kts. Diving limit, over 70 fathoms.

*Notes.*—Is the largest submarine in the world, representing an experimental type not likely to be repeated. Designed as a corsair and carries the heaviest guns allowed by Treaty. Can dive in 2 minutes. The Torpedo armament appears to be disposed as follows : **6** in bows, 4 in 2 sets of training tubes aft. Trials included an endurance cruise of 5,000 miles from Cherbourg to Agadir, Dakar and Konakri in Nov., 1932. Sea speed does not exceed 16 kts.



SURCOUF (showing hangar open and AA guns.) 1936, *M. Le Masson.*

## 2 + 2 (*projected.*) MORILLOT CLASS.

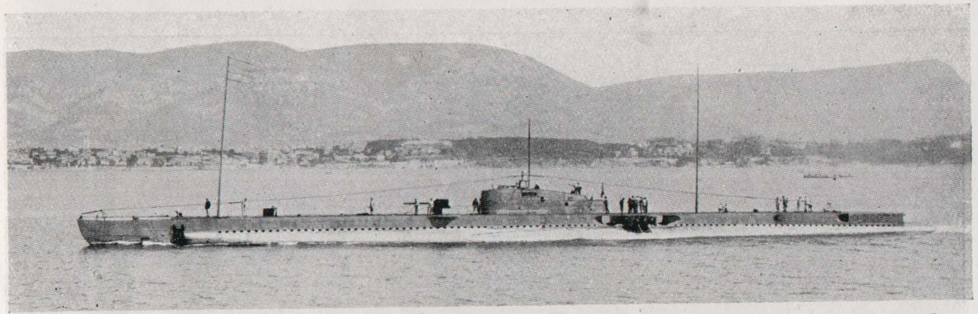
(To be completed early in 1940.)

**ROLAND MORILLOT, LA PRAYA.** Laid down at Cherbourg, May and June, 1937, under 1934 and 1937 Programmes, respectively. 2 more to be built under 1938 Programme. 1,605 tons *surface* displacement, 2,100 tons *submerged.*

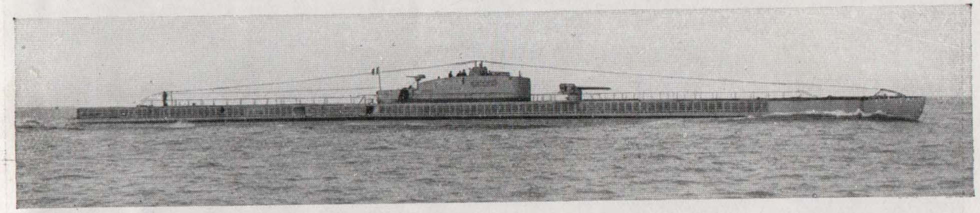
Dimensions :
Guns : **1**—3·9 inch, **2**—13 mm. AA. (paired).
Tubes : **9**—21·7 inch.
**2**—15·7 inch.
Diesels H.P. : 6,000 = 23 kts. *surface.*
Electric motors, H.P. : = 10 kts. *submerged.*

*Note.*—Design was probably inspired by success of British *Thames* class.

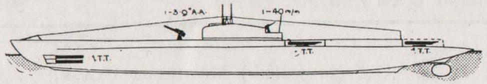
## 30 Redoutable Class.



MONGE. 1935, *Ganda.*



VENGEUR. 1930 *Photo, favour of M. of Marine.*



30 *Roquebert type.*

1924 Programme.

**Redoutable** (Feb. 24th, 1928) } Cherbourg.
**Vengeur** (Sept. 1st, 1928)

1925 Programme.

**Pascal** } (July 19th, 1928), Brest.
**Pasteur**
**Henri Poincaré** } (April 10th, 1929), Lorient.
**Poncelet**
**Fresnel** (June 8th, 1929), St. Nazaire (Penhoët).
**Archimede** (Sept. 6th, 1930), Ch. Nav. Fr. Blainville.
**Monge** (June 25th, 1929), La Seyne.

1926 Programme.

**Actéon** (April 10th, 1929) } A. C. Loire.
**Acheron** (Aug. 6th, 1929)
**Argo** (April 11th, 1929), Ch. Dubigeon, Nantes.
**Achille** } (May 28th, 1930) Brest.
**Ajax**

8)
20)
21) и 30) в строю 9 - 550
2 - 400 торп.-т.

1927 Programme.

**Persée** (May 23rd, 1931), C. N. F. Blainville.
**Protée** (July 31st, 1930), F. C. Havre.

**Pégase** (July 28th, 1930), A. C. Loire.
**Phénix** (April 12th, 1930), Ch. Dubigeon. 17.06.39

1928 Programme.

**L'Espoir** (July 18th, 1931) } Cherbourg.
**Le Glorieux** (Nov. 29th, 1932)
**Le Centaure** } (Oct. 14th, 1932), Brest.
**Le Héros**
**Le Conquerant** (June 26th, 1934), A. C. Loire.
**Le Tonnant** (Dec. 15th, 1934), La Seyne.

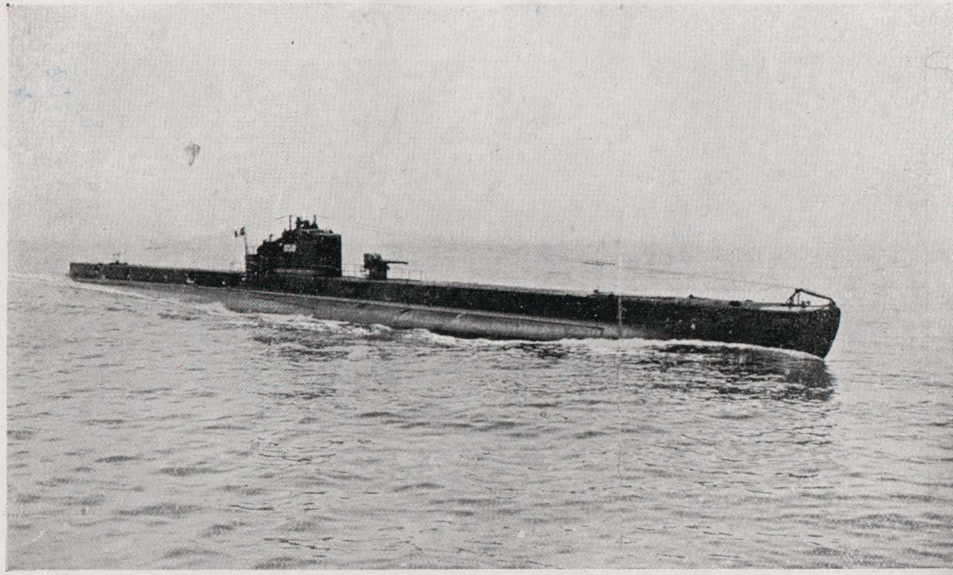
1930 Programme.

**Agosta** (Apl. 30th, 1934) } Cherbourg.
**Beveziers** (Oct. 14th, 1935)
**Ouessant** (Nov. 30, 1936)
**Sidi-Ferruch** (July 9, 1937)
**Sfax** (Dec. 6th, 1934) } A. C. Loire.
**Casabianca** (Feb. 2nd, 1935)
(ex *Casablanca*)

Displacement: 1,384 tons *surface;* 2,080 tons *submerged* for first two; remainder 1,379 tons *surface;* 2,060 tons *submerged.* Dimensions: 302½ × 27 × 16 feet. Diesels: 2 sets Sulzer or Schneider-Carel type, H.P. 6,000 = 17 kts. Vessels of 1930 Programme, H.P. 8,400 = 18 kts. Electric motors of H.P. 2,000 = 10 kts. *submerged.* 1 auxiliary Diesel, H.P. 750. 2 shafts. Armament: **1**—3·9 inch AA., **2**—13 mm. AA., **11**—21·7 inch tubes, including 2 sets of revolving tubes in triple and quadruple mountings, the latter at the stern. (*Phénix*, 10 tubes only.) Complement: 67.

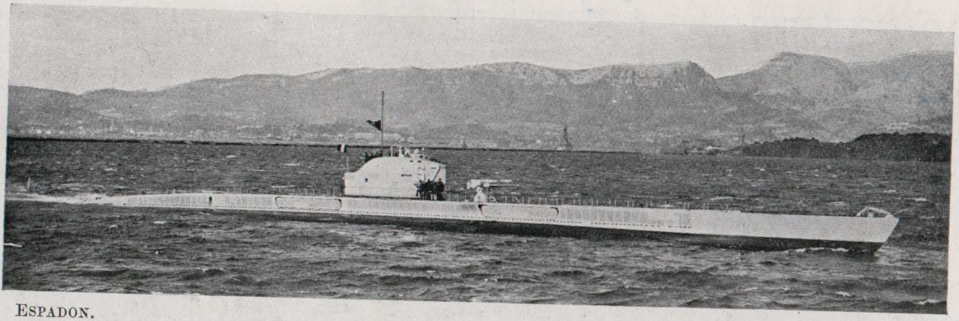
Radius of action = 30 days' cruising.

*Notes.*—Have proved very successful on trials. *Vengeur* and *Redoutable* performed a cruise to the West Indies in 1930 without mishap, and were able to make 19 kts. easily without being pressed. A longer unescorted cruise was that of *Gloreiux* and *Héros* from Toulon to Saigon in 1935, a distance of 14,350 miles for the round voyage. Even longer cruises were made in 1937, by other units, to the West Indies, Indo-China and the South Atlantic. *H. Poincaré* maintained an average of 17·6 kts. for 48 hours on trials. 1927 and 1928 boats reached 20 kts. and 1930 boats with 8,400 H.P. were able to do 21 kts. *Promethée* lost on trials, July 8th, 1932.



AGOSTA 1936.

## ~~9~~ Requin Class.

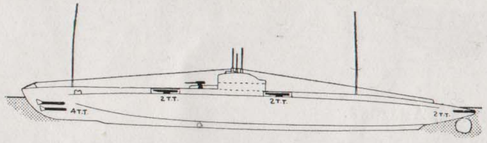


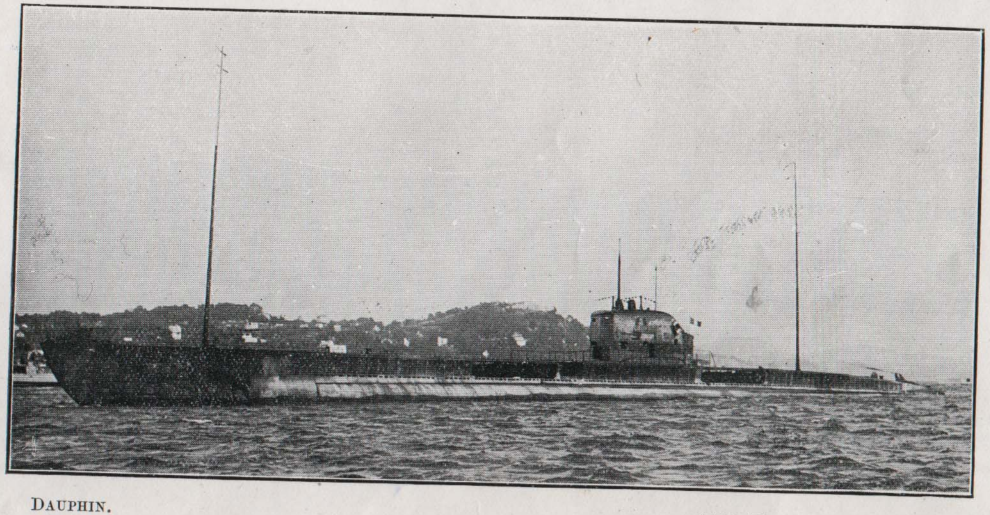
ESPADON. 1935.

9 *Fuzier-Roquebert* type: **Requin** (19th July, 1924), **Morse** (11th Nov., 1925), **Narval** (9th May, 1925), **Souffleur** (Oct. 1st. 1924), **Caïman** (3rd March, 1927), (all Cherbourg), **Dauphin** (1925), **Espadon** (28th May, 1926), (both Toulon), **Marsouin** (Dec. 27th, 1924), **Phoque** (16th March, 1926), (both Brest). 974 tons (*on surface*), 1441 tons (*submerged*). Dimensions: 257½ (*p.p.*) × 23 × 17¾ feet. Complement: 51. Machinery: 2 Diesel motors, of Sulzer or Schneider-Carel type, each 1450 H.P. Total 2900 H.P. = 16 kts. Electric drive: 248 "D" type batteries, 1800 H.P. = 10 kts. Radius: 7000 miles at 9 kts. (*on surface*), 105 miles at 5 kts. (*submerged*). Endurance: equal to 30 days' cruising. Guns: **1**—3·9 inch, **2** M.G. AA. Torpedo tubes: **10**—21·7 inch (4 bow and 2 stern submerged; 4 above water, revolving in pairs before and abaft C.T.). 32 torpedoes (24 of 1922 model, 8 of 1919 model) carried by *Caïman*, *Espadon*, *Phoque*; 16 by others.

*Notes.—Requin, Souffleur, Morse, Narval, Marsouin, Dauphin* begun as *Q* 115—120 of 1922-1923 Programme. Other three came under Coast Defence Vote of June 30, 1923. All completed 1926-27. Freeboard about 7 feet. Top of C.T. is 13 feet above water. Can dive with safety to 100 metres (say, 55 fathoms). On commissioning, *Requin* carried out a 5,000 mile cruise, occupying 31 days in African waters, without mishap of any kind.

(All this class taken in hand for modernisation, 1935–37.)





DAUPHIN. 1926 *Photo, M. Bar, Toulon.*

## Submarines, 2nd Class.

## ~~5~~ 2 + ~~4~~ 2 (*Projected*), Aurore Class.

~~Building~~

1 *Toulon:* **AURORE** (1934 Programme).
2 *Normand:* **LA BAYADÈRE, LA CREOLE** } (1937 Programme).
2 *Ch. Worms:* **L'AFRICAINE, LA FAVORITE** } (1937 Programme).
4 *to be built* under 1938 Programme.

Displacement: 803 tons *on surface.*
Dimensions: 223½ × 17½ × 15 feet.
Guns: 1—3·9 inch, ~~2—13~~ mm. AA. Tubes: 9—21·7 inch.
H.P.: 1,800 = 14·5 kts. *on surface.*

893/1170 т   17/10 кн   1-100
2-20
10-550

| *Name.* | *Begun.* | *Launch.* | *Completed.* |
|---|---|---|---|
| *Aurore* | 1936 | | |
| *La Bayadère* | 1937 | | |
| *La Creole* | 1937 | | |

| *Name.* | *Begun.* | *Launch.* | *Completed.* |
|---|---|---|---|
| *L'Africaine* | 1937 | | |
| *La Favorite* | 1937 | | |

3) достроена в 46 г.
L'Astrée - достроена в 47 г

4) достраивается
Andromède достраивается

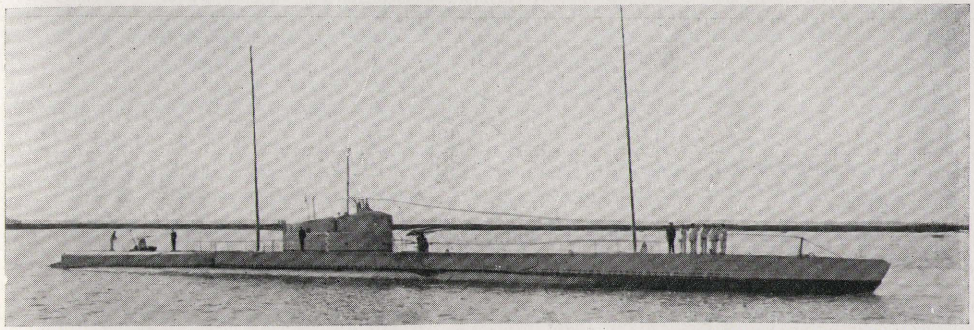
? б герм U-2518
Laubie ,, V-760
Mille ,, V-471
Blaison ,, V-123
Bouan ,, V-510
} см стр 237

Doris б Англ Vineyard постр 44 626/721 13/9 кн 1-76 4-533
Narval б итал Bronzo см стр 290

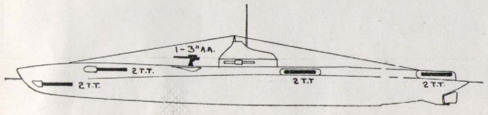
## Second Class—*Continued.*

## 22 Diane Class.

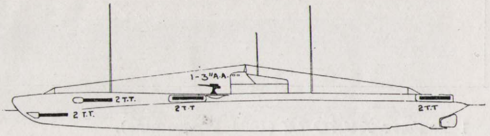
2



ORION. 1932 *Photo, Capt. M. Adam.*



ARGONAUTE.



ORION.

All are of same general type with minor differences, reflected in appearance, according to builders. (See note and photographs.)

1926 PROGRAMME
**Argonaute** (May 23rd, 1929) } Schneider
**Aréthuse** (Aug. 8th, 1929) } Schneider
**Diane** (May 13th, 1930) } Normand
**Méduse** (Aug. 26th, 1930) } Normand

1927 PROGRAMME
**Amphitrite** (Dec. 20th, 1930) Normand
**Antiope** (Aug. 19th, 1930) } Worms
**Amazone** (Dec. 28th, 1931) } Worms
**Atalante** (Aug. 5th, 1930) Schneider

1928 PROGRAMME
**Orphée** (Nov. 10th, 1931) Normand
**Oréade** (May 23rd, 1932) Worms
**Orion** (April 21st, 1931).. Loire
**Ondine** (May 4th, 1931).. Dubigeon

1929 PROGRAMME
**La Psyché** (Aug. 4th, 1932) Normand
**La Sybille** (Jan. 28th, 1933) Worms
**La Vestale** (May 25th, 1932) } Schneider
**La Sultane** (Aug. 9th, 1932) } Schneider

1930 PROGRAMME
**Minerve** (Oct. 23, '34). Cherbourg
**Junon** (Sept. 15th, 1935) Normand
**Vénus** (April 6th, 1935) Worms
**Iris** (Sept. 23rd, 1934) Dubigeon

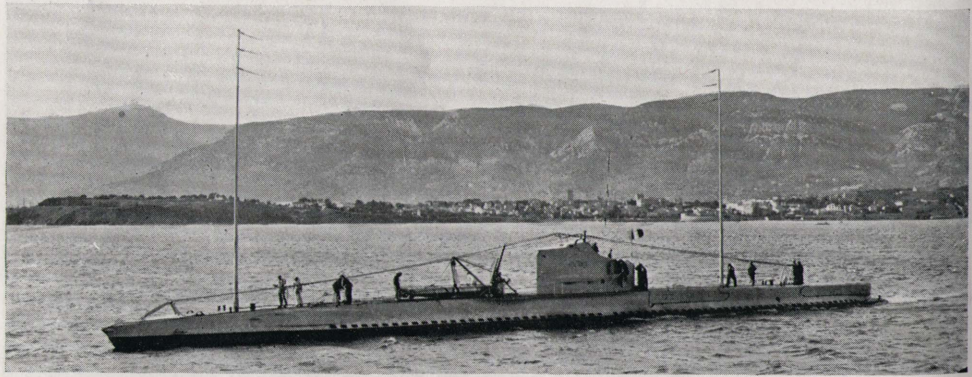
1936 PROGRAMME
**Ceres** Worms
**Pallas** Normand

18?
20) [illegible]

Displacements: *Argonaute, Aréthuse, Atalante, La Vestale, La Sultane,* 565 tons; *Diane, Méduse, Amphitrite, Antiope, Amazone, Oréade, Orphée, La Psyché, La Sybille,* 571 tons; *Orion, Ondine,* 585 tons; *Minerve, Junon, Vénus, Iris, Ceres, Pallas,* 597 tons, all on *surface. Submerged,* 809 tons. Complement: 48. Dimensions: *Argonaute, Aréthuse, Atalante,* 208 × 21 × 13¾ feet; *Orion, Ondine,* 219 × 22 × 15 feet; remainder, 211 × 20 × 13¾ feet. Armament: **1**—3 inch AA., **1** M.G., **8**—21·7 inch tubes in first 16 boats; but **7**—21·7 inch and **2**—15·7 inch in remaining 6, which have latter tubes mounted on either side of a larger tube in after triple group. Machinery: 2 sets Diesels, of Schneider-Carel type in *Argonaute, Aréthuse, Atalante, La Vestale, La Sultane, Ceres, Pallas*; Vickers-Normand in *Diane, Méduse, Amphitrite, Amazone, Antiope, Orphée, Oréade, La Psyché, La Sybille, Minerve, Junon*; Sulzer in *Orion, Ondine.* B.H.P.: 1,300 to 1,400 = 14 kts. *surface.* Electric motors. H.P.: 1,000 = 9 kts. *submerged.* Radius: 3,000 miles at 10 kts. *surface*; 78 miles at 5 kts. *submerged.*

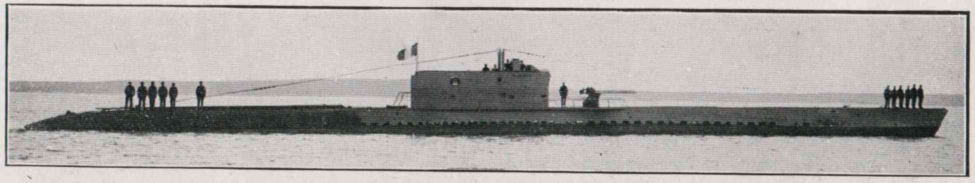
*Notes.*—Designs of these submarines are by Normand, Loire-Simonot (*Orion* and *Ondine*) and 1930-36 batch by Ministry of Marine.

MEDUSE, DANAÉ, LA PSYCHÉ, AMAZONE. 1936.



ATALANTE. *Added* 1937, *Ganda.*

## 11 Sirène Class.

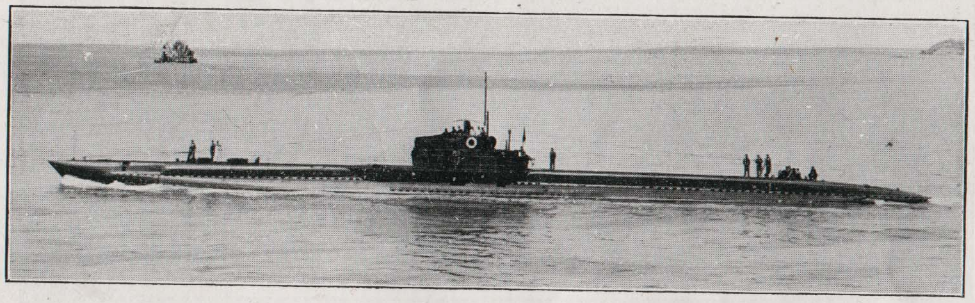


SIRÈNE. 1927 *Official Photo.*

4 *Simonot* type, built by A. & C. de la Loire, St. Nazaire: **Naïade** (Oct. 20, 1925), **Sirène** (August 6, 1925), **Nymphe** (April 1, 1926), **Galatée** (Dec. 18, 1925). Displacement: 552 tons surface, 780 tons submerged. Dimensions: 210 (*p.p.*) × 21 × 14¾ feet. Machinery: 2 sets 2-cycle Sulzer Diesels, B.H.P. 1,300 on *surface*, = 14 kts. 1,000 submerged = 7·5 kts. Complement, 40.

Following particulars apply to all 11. Complement: 40. 140 to 144 "D" type electric batteries. Speed: 14 kts. on *surface*, 7·5 kts. *submerged*. Radius: *surface*, 2,000 miles at 10 kts.; *submerged*, 90 miles at 5 kts. Endurance equal to 20 days' cruising. Can dive to 45 fathoms. Guns: **1—3** inch AA., **2** M.G. Torpedo tubes (21·7 inch): **7.** 13 torpedoes carried. Cost stated to be Frs. 8,500,000 each.

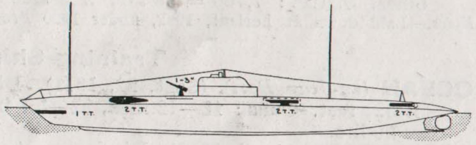
*Notes.—Ariane, Calypso, Circé, Naïade, Ondine, Sirène,* were laid down as *Q. 121—126* of 1922-23 Programme; others under Coast Defence Vote of Sept. 30, 1923.

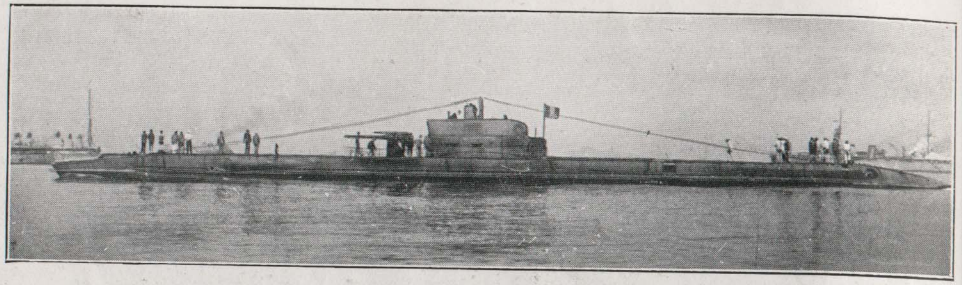


ARIANE. 1927 *Official Photo.*

3 *Normand-Fenaux* type, built by C. & A. Augustin Normand, Le Hâvre: **Ariane** (August 6, 1925), **Danaé** (Sept. 11, 1927), **Eurydice** (May 31, 1927). Displacement: 576 tons *surface*, 765 tons *submerged*. Dimensions: 216½ (*p.p.*) × 20⅓ × 13½ feet. Machinery: 2 sets 4-cycle Diesels, Vickers-Normand type. Electric motors by Schneider et Cie. 1,200 B.H.P. on *surface* = 14 kts. 1,000 *submerged* = 7.5 kts. Complement, 40.

*Note.*—This type is reported to have given great satisfaction in service. A fourth boat, *Ondine*, lost by collision with a Greek steamer, October 3rd, 1928.



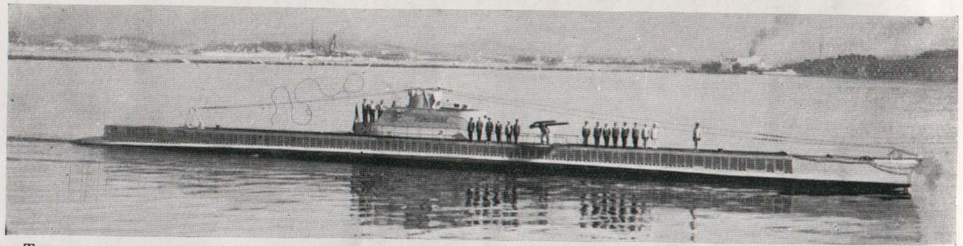


DORIS 1929 *Photo, M. Bar, Toulon.*

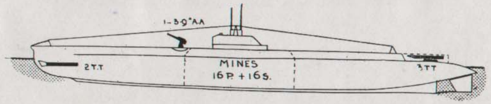
4 *Schneider-Laubeuf* type, building by Schneider et Cie, Chalon-sur-Saône: **Circé** (Oct. 29, 1925), **Calypso** (Jan. 1926), **Doris** (Nov. 25, 1927), **Thetis** (June 30, 1927). Displacement: 548 tons *surface*, 764 tons *submerged*. Dimensions 204 (*p.p.*) × 21⅓ × 12¾ feet. Machinery: 2 sets 2-cycle Schneider-Carels Diesels, 1,250 B.H.P. = 14 kts. H.P. 1000 = 7·5 kts. *submerged*.

## Mine Laying Type.

## 7 Saphir Class



TURQUOISE. 1930 *Photo, A. Ganda*

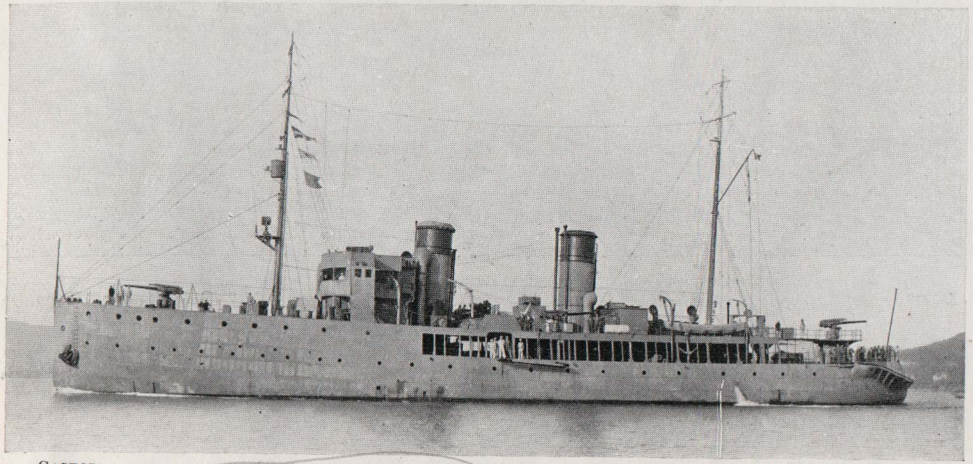


7 *Normand-Fenaux* type: **Saphir** (Dec. 20th, 1928); **Turquoise** (May 16th, 1929); **Nautilus** (Mar. 21st, 1930); **Rubis** (Sept. 30th, 1931); **Diamint** (May 18th, 1933); **Perle** (July 30th, 1935); **Emeraude** (laid down 1937). All built at Toulon. Displacement: 669 tons *on surface*, 910 *submerged*. Dimensions: 216½ × 23⅔ × 16 feet. Machinery: 2 sets Vickers-Normand 4-cycle Diesels. B.H.P.: 1,300 = 12 kts. *Submerged* H.P.: 1.000 = 9 kts. Armaments: **1—3** inch AA., **5—21·7** inch tubes, **32** minelaying chutes, arranged on Normand-Fenaux system. Carry **6** torpedoes and **32** mines of 460 lbs. weight. *Saphir* and *Turquoise* 1925 Programme, *Nautilus* 1926, *Rubis* 1927, *Diamant* 1928–29, *Perle* 1930, *Emeraude* 1937. Complement: 40. Radius of action: 2,500 miles *surface*, 850 miles *submerged*.

4) - [illegible]

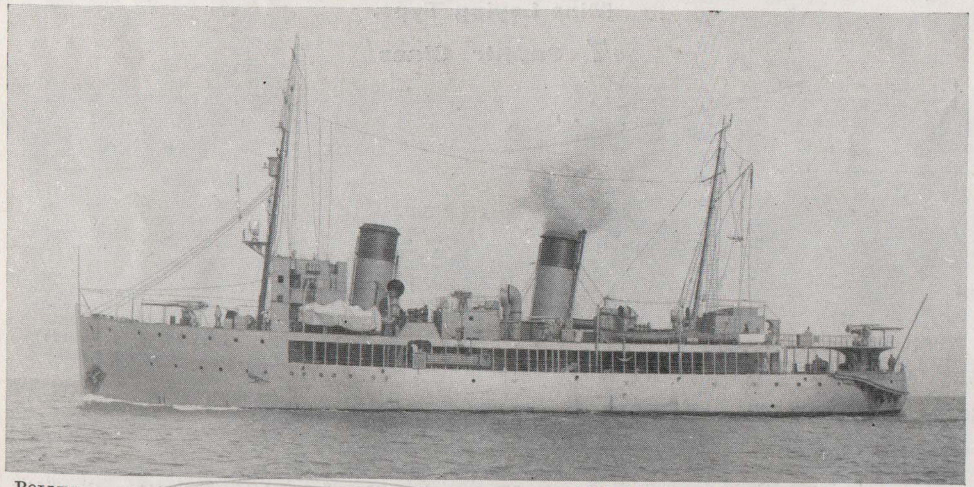
## Mine Layers (*Mouilleurs de Mines*).

*Note.*—7 submarines of *Saphir* class are also fitted for minelaying.



CASTOR. 1930 *Photo, M. Bar.*

**CASTOR** (ex-Russian Icebreaker *Kozma Minin*) (Swan Hunter, 1916). Displacement: 3,150 (*standard*) tons. Dimensions: 248 × 57 × 19 feet. 3 sets triple expansion engines. 6 S.E. boilers. I.H.P.: 6,400 = 14·5 kts. Coal: 686 tons. Carries 368 mines. Armament: **4**—3·9 inch, **2**—37 mm. AA. Complement: 167. Radius: 4,500 miles at 10 kts.

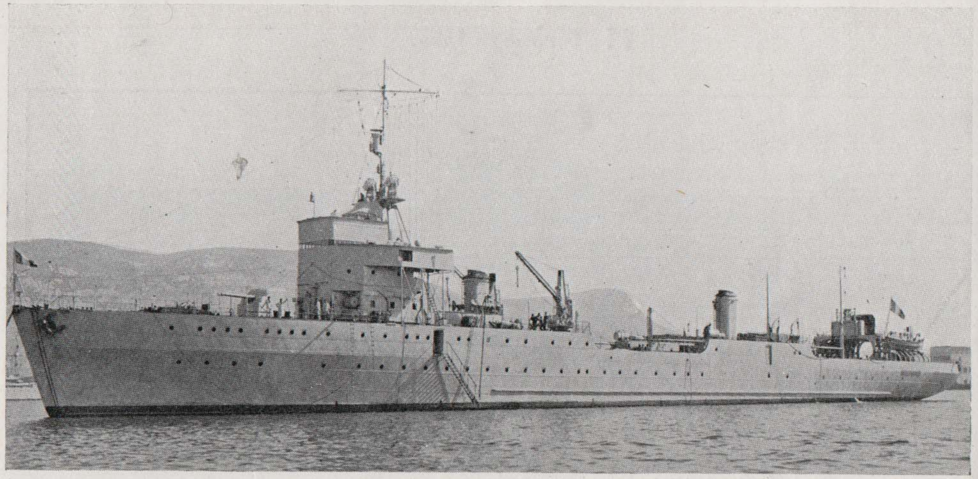


POLLUX. 1930 *Photo, courtesy of Ministry of Marine.*

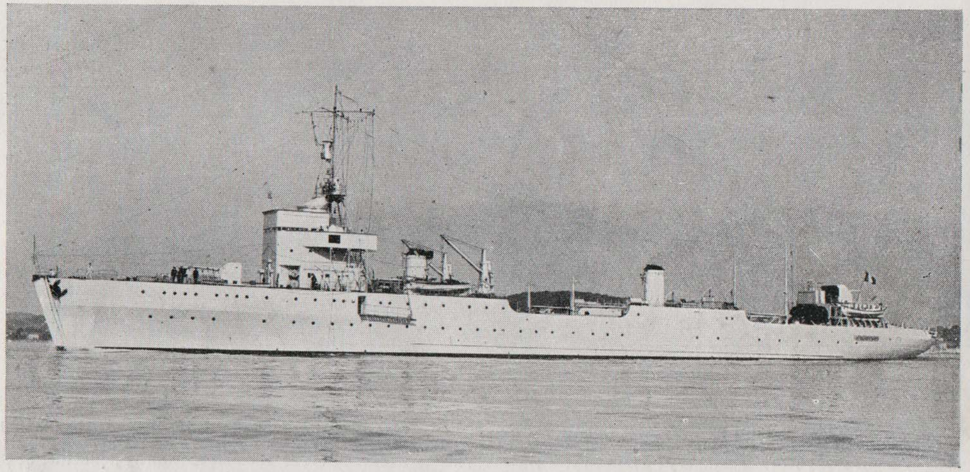
**POLLUX** (ex-Russian Icebreaker *Ilya Murometz*) (Swan Hunter, 1915). Displacement: 2,461 (*standard*) tons. Dimensions: 200 (*p.p.*), 211 (*o.a.*) × 50$\frac{1}{2}$ × 20 feet. Triple expansion engines. 6 cylindrical boilers. I.H.P.: 4,000 = 14 kts. 2 screws. Coal: 367 tons. Carries 236 mines. Armament: **4**—3·9 inch, **2**—37 mm. AA. Complement: 162. Radius: 2,300 at 8 kts., 1,470 miles at 14 kts.

*Note.*—Both these vessels were converted into Mine Layers by Lorient Dockyard, 1928-29.

## Netlayer.



1935, *courtesy Mons. H. Le Masson.*



1935, *A. Ganda.*

**LE GLADIATEUR** (April 10, 1933). Displacement: 2,293 tons. Complement: 153. Dimensions: 370$\frac{3}{4}$ × 41$\frac{1}{2}$ × 11$\frac{1}{2}$ feet. Guns: **4**—3·5 inch AA., **6** M.G. Machinery: 2 Parsons turbines. S.H.P.: 7,700 = 18 kts. 2 Indret boilers. Oil: 399 tons.

*Notes.*—Laid down at Lorient, 1932, under 1930 Programme. Completed 1934.

## Training Ships (ex-Battleships).

**OCÉAN** (ex-*Jean Bart*), (Sept. 22, 1911). Displacement: 22,189 tons. Dimensions: 541 × 92 × 32$\frac{1}{2}$ feet. Guns: **12**—12 inch, **22**—5·5 inch, **7**—3 inch AA., **2**—47 mm. AA. H.P.: 28,000 = 20 kts.

**CONDORCET** (April, 1909). Displacement: 17,597 tons. Dimensions: 475$\frac{3}{4}$ × 84$\frac{1}{2}$ × 30 feet. Guns: **4**—12 inch, **12**—9·4 inch, **2**—3 inch AA. H.P.: 22,500 = 16 kts.

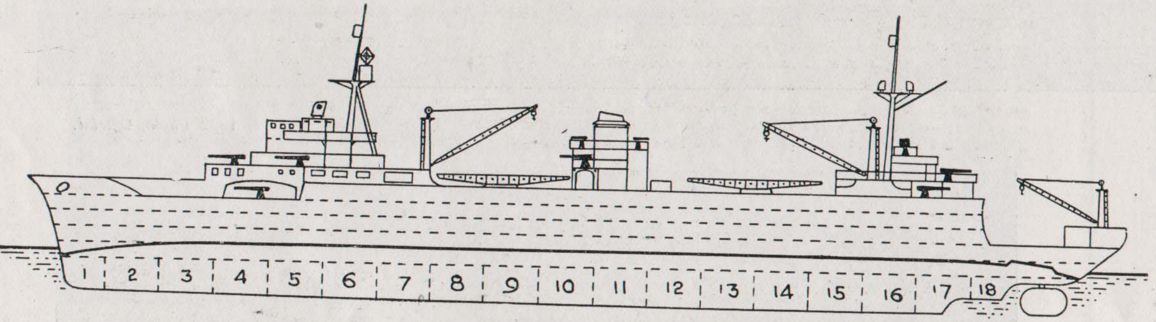
## COMMANDANT TESTE. (F. et C. de la Gironde, Bordeaux, April 12th, 1929.)

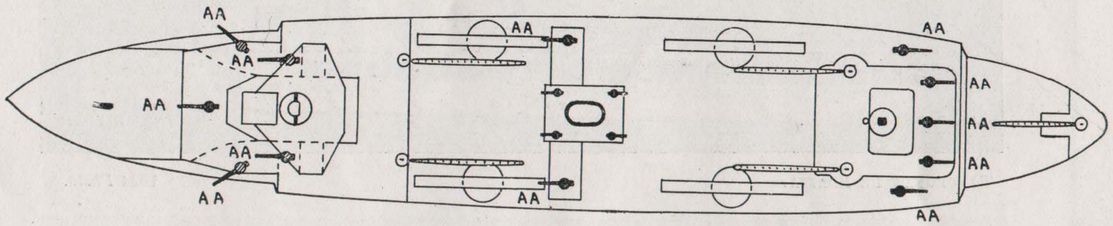
Standard Displacement, 10,000 tons. Length, 512¾ feet (*p.p.*), 558 feet (*o.a.*). Beam, 71½ feet (88½ feet, extreme). Draught, 22¾ feet. Complement, 642.

Guns :
12—3·9 inch AA.
8—3 pdr. AA.
12 M.G.
Aircraft : 26
Catapults : 4

Armour :
2″ (H.T.?) side at waterline.
1½″ protective deck over engine and boiler spaces.

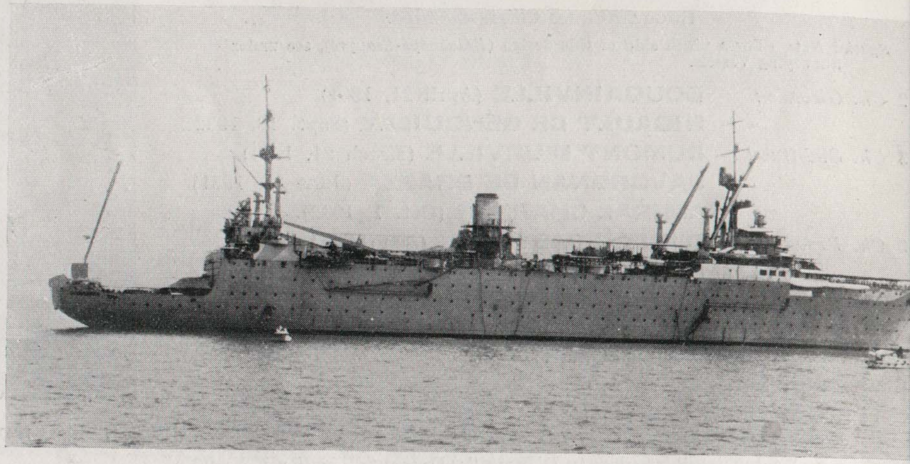
*Note to Plan.*—3·9 inch AA. abeam of funnel are at deck level.



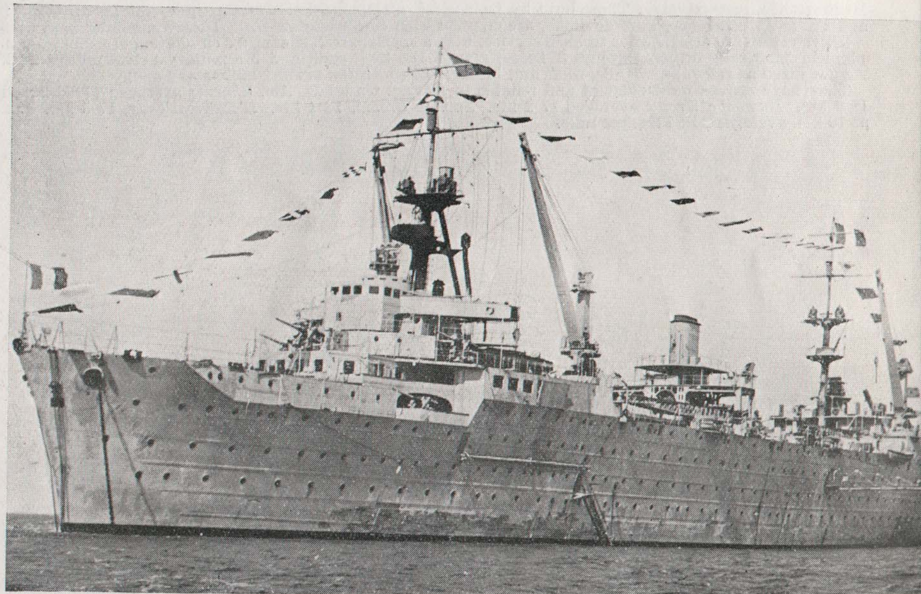


Machinery : 2 Schneider-Zoelly geared turbines. 2 screws. 4 Yarrow-Loire boilers (mixed firing). S.H.P. 21,000 = 20·5 kts. Radius of action : 6000 miles at 10 kts. Fuel :— Oil 290, coal 720 tons. Trials : Average speed of 21·77 kts. maintained for 3 hours.

*Notes.*—This vessel is intended to act as a tender to *Béarn*, and as a reserve from which aircraft supplies can be drawn by cruisers which carry planes. Authorised under 1926 Programme, she was ordered in May, 1927, and completed in 1931. She carries 4 catapults, Penhoët 3-ton type, with accommodation for 26 seaplanes in a hangar measuring 275 × 88½ × 23 feet high.



1934, *Nautical Photo Agency* (*added* 1935).



1933 *Photo, Leslie H. Howard, Esq.*

(*Classed as* Avisos Coloniaux).

Bougainville Class—8 Ships.

*Special Note.*—For a ninth ship of this design (*Beautemps-Beaupré*), see under Surveying Vessels.

2 *Ch. Gironde :* **BOUGAINVILLE** (April 21, 1931).
**RIGAULT DE GENOUILLY** (Sept. 18, 1932).
3 *Ch. Sud-Ouest :* **DUMONT D'URVILLE** (March 21, 1931).
**SAVORGNAN DE BRAZZA** (June 18. 1931).
**AMIRAL CHARNER** (Oct. 1, 1932).
3 *Ch. Provence :* **D'ENTRECASTEAUX** (June 22, 1931).
**D'IBERVILLE** (Sept. 23, 1934).
**VILLE D'YS** (Laid down 1937).

Displacement : 1,969 tons *standard* ; 2,156 tons *normal*. Complement : 135.

Dimensions : 340 × 41⅔ × 14¾ feet.

Guns : **3**—5·5 inch, **4**—37 mm. AA., **6** M.G. Stowage for 50 mines. 1 seaplane carried.

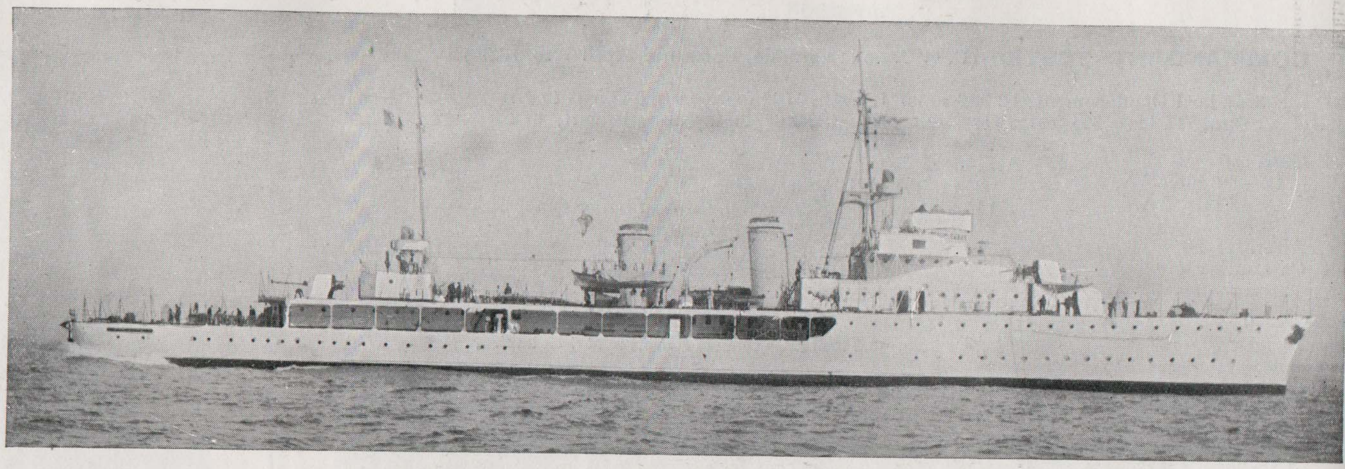
Machinery: 2 sets Diesels—Sulzer in *D'Iberville, Dumont d'Urville, Ville d'Ys* and *Savorgnan de Brazza ;* Schneider-Burmeister in other 4 ships. S.H.P. : 3,200 = 15·5 kts.

Radius : 9,000 miles at 10 kts. Fuel Oil : 60 tons. Diesel Oil : 220 tons.

*Notes.*—First two were authorised in 1927 ; two in 1928, three in 1930, and one in 1937. Those built by At. & Ch. du Sud-Ouest, Bordeaux all have Sulzer Diesels, made by the At. & Ch. de la Loire and F. & Ch. de la Mediterranée, respectively. Those built by La Société d'Exploitation des Chantiers de la Gironde, Bordeaux, and Ch. & At. Provence, Port de Bouc, are engined with Burmeister & Wain Diesels manufactured by Schneider.

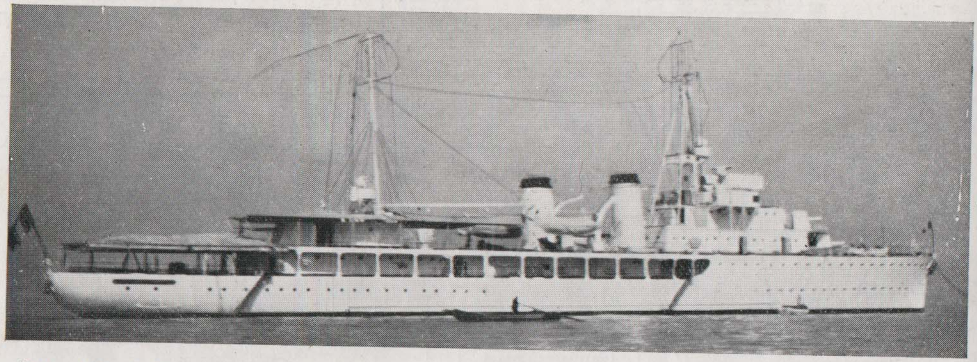
These vessels are designed for tropical service, with a special arrangement for circulation of cool air, and auxiliary plant is electrically driven through 3 Diesel groups 125 kws. each and 2 auxiliary petrol groups 22 kws. each. All are fitted as flagships. Hulls, roofs and bridges are protected against bullets and splinters.

They have proved most efficient and reliable in service. On trials, *Am. Charner* averaged 17·86 kts., maximum 18·9 kts. *Dumont d'Urville* averaged 17·2 kts. *Sav. de Brazza*, 18·1 kts. *D'Entrecasteaux*, 17·5 kts. Consumption at 10 kts. averages 26·55 lbs. per mile.



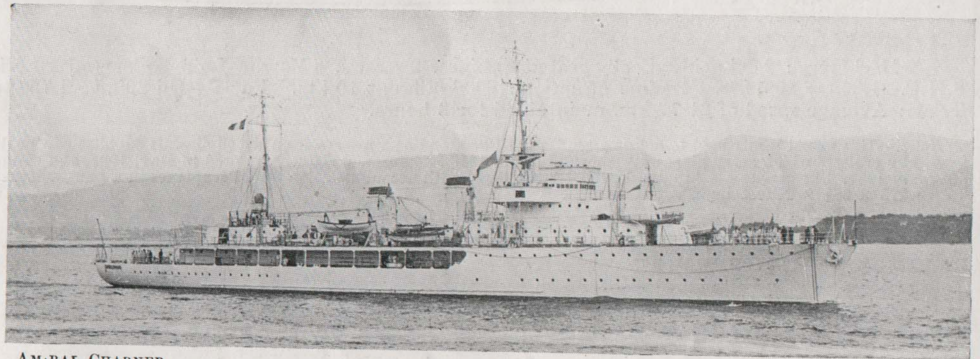
Dumont D'Urville.

1932 *Photo, Official.*



Savorgnan de Brazza.

1934 *Photo.*



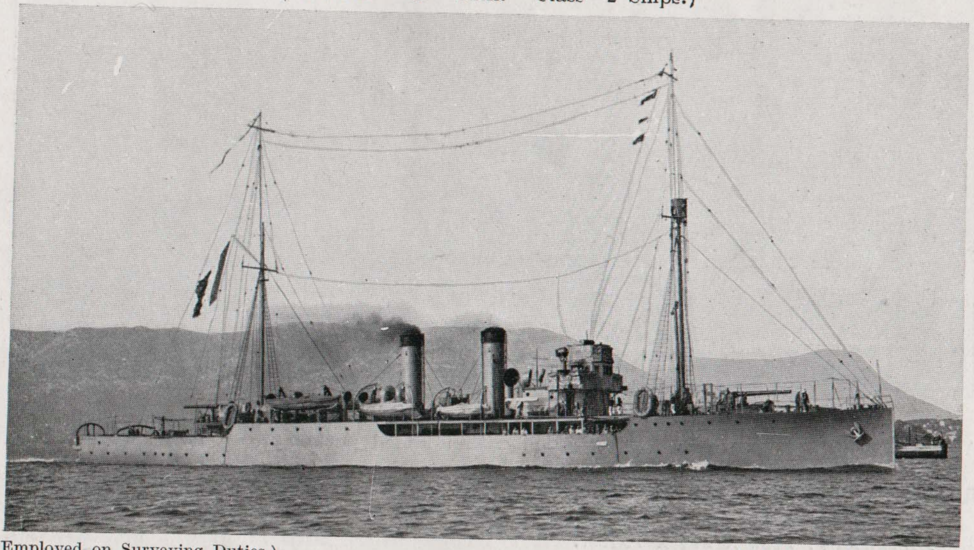
Amiral Charner.

1935, *Ganda.*

Френсис Гарнье (б. итал. Eritrea)
см стр 276

(Classed as *Avisos.*)

("Étoile" or "Star" Class—2 Ships.)

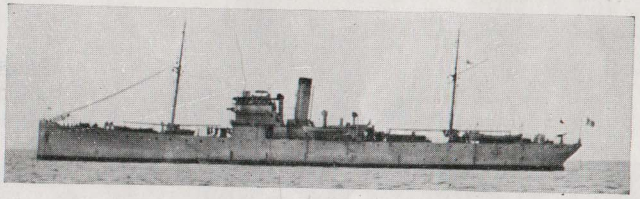


(Employed on Surveying Duties.)

1920 *Photo, M. Bar, Toulon.*

**ALTAIR** (July, 1916), (Wm. Hamilton & Co., Port Glasgow). Classed as *Aviso Colonial.* *Standard* displacement : 1,122 tons. Dimensions : $255\frac{1}{4}$ (*p.p.*), $267\frac{1}{3}$ (*o.a.*) × $34\frac{1}{2}$ × $13\frac{3}{4}$ feet. Guns : 2—5·5 inch, 2—3 inch AA., 2 M.G. Fitted for minesweeping. Designed I.H.P. : 2,800 = 17 kts. Machinery : 1 set 4 cyl. triple expansion. Boilers : Cylindrical. 1 screw. Coal : 270 tons = 2,400 miles at 12 kts. Complement : 103.

*Notes.*—This ship is practically a replica of the British "Flower Class" Sloops. All built under 1916 War Programme. *On trials* they made from 16·8 to 17·1 kts. with about 2,675 H.P. All employed on Colonial Service. *Rigel* lost during the War. *Cassiopée* scrapped 1932, *Bellatrix* and *Aldébaran* in 1933, *Algol* and *Regulus* in 1935, *Antares* in 1936.



1921 *Photo, Com. R. Steen Steensen, R.D.N.*

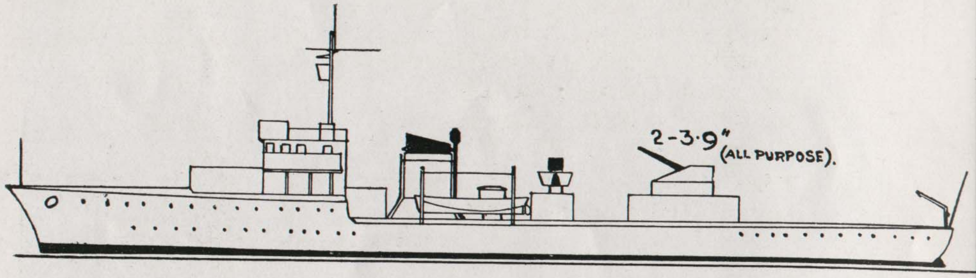
**VILLE D'YS** (ex-*Andromède*), Swan, Hunter & Wigham Richardson, Wallsend-on-Tyne, June, 1917.

Displacement : 1,121 tons. Complement : 103.
Dimensions : $255\frac{1}{4}$ (*p.p.*), $272\frac{1}{3}$ (*o.a.*) × $39\frac{1}{3}$ × $16\frac{1}{2}$ feet.
Guns : 3—3·9 inch, 2—3 inch, 2—47 mm.
Machinery : 1 set 4-cyl. triple expansion. I.H.P. : 2,500 = 17 kts.
Boilers : 2 cylindrical. Coal : 270 tons = 2,400 miles at 10 kts.

*Note.*—Generally same build as British convoy sloops. Built under 1916 War Programme to replace *Rigel*, lost. Begun for British Navy as *Andromeda* and turned over to French Navy. Now employed on Newfoundland fisheries services. Will be scrapped by the time new ship of same name (on preceding page) is ready for service.

(Classed as *Avisos-Dragueurs.*)

(Élan Class—18 Ships.)



8 *Lorient Dockyard :* **CHAMOIS, CHEVREUIL, ÉLAN, GAZELLE, ANNAMITE, BAMBARRA, LA CURIEUSE, LA MOQUEUSE.**

4 *At. et Ch. de France, Dunkerque :* **COMMANDANT BORY, COMMANDANT DELAGE, L'IMPETUEUSE, LA BOUDEUSE.**

3 *Ch. Dubigeon, Nantes :* **COMMANDANT DUBOC, LA RIEUSE, LA CAPRICIEUSE**

3 *Ch. et At de Provence, Port de Bouc :* **COMMANDANT RIVIÈRE, LA BATAILLEUSE, LA GRACIEUSE.**

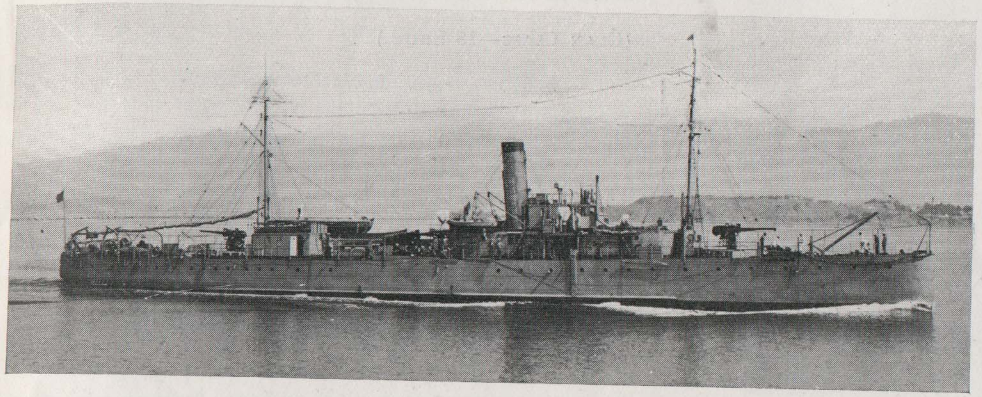
*Standard* displacement : 630 tons, except 4 fitted for Colonial service (*Chevreuil, Gazelle, Annamite, Bambarra*), which are 647 tons. Complement :

Dimensions :

Guns : 2—3·9 inch AA.

Machinery : Diesels (Sulzer type in Ch. de France boats). H.P. : 4,000 = 20 kts.

*Notes.*—*Élan* built under 1934 Programme ; *Chamois, Chevreuil* and *Gazelle* under 1935 ; *Commandant* series unde 1936 ; and remainder under 1937. First 8 laid down during 1936, others in 1937. *Chamois* to be tender to Navigatic School.

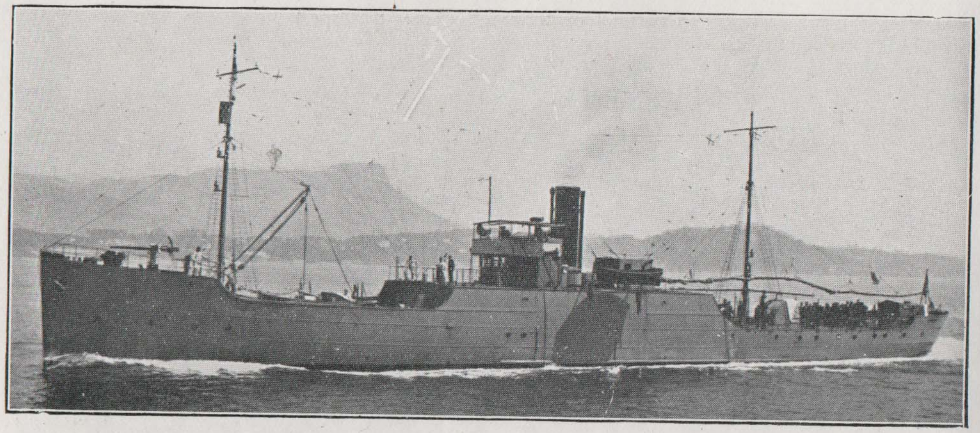


SUIPPE; ANCRE has same appearance. 1930 *Photo.*

**ANCRE** (Lorient D.Y. Jan., 1918).
**SUIPPE** (Lorient D.Y. April, 1918).

Displacement: 604 tons. Complement: 107. Dimensions: 250—262 × $28\frac{1}{2}$ × $10\frac{3}{4}$ feet. Guns: **4**—3·9 inch, **1**—9 pdr. AA., **2** M.G. Designed H.P.: 5,000 = 20 kts. Machinery: 2 sets geared turbines. Boilers: 2 du Temple. 2 screws. Oil fuel: 140 to 145 tons = 4,000 miles at 10 kts.

*Note.*—*Ancre* is tender to Navigation School.

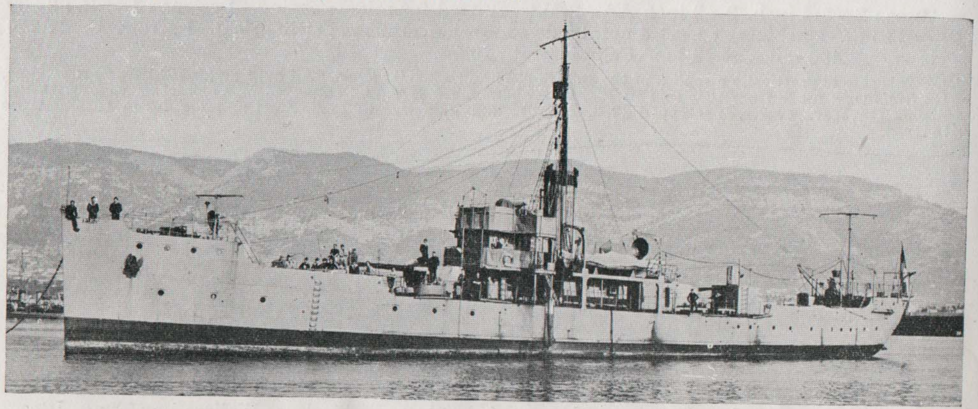


1924 *Photo, A. Dussau, Toulon.*

AILETTE. The 3·9 inch guns are concealed within lidded ports at angles of superstructure. AA. gun on forecastle.

**AILETTE** (Brest D.Y., March, 1918).

Displacement: 492 tons. Complement: 107. Dimensions: $229\frac{1}{2}$ × $27\frac{1}{4}$ × 10 feet. Guns: **4**—3·9 inch, **1**—9 pdr. AA., **2** M.G. S.H.P: 5,000 = 20 kts. 2 sets geared Turbines. Boilers: 2 du Temple. 2 screws. Oil: 140 tons = 4,000 miles at 10 kts. 1,400 miles at 15 kts. Is now employed on Fishery Protection duties.

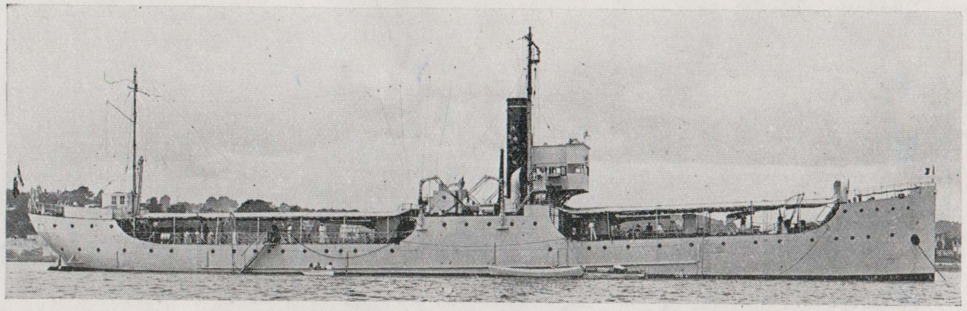


1921 *Photo, M. Bar, Toulon.*

"DUBOURDIEU" TYPE.—4 *Avisos.*

**DUBOURDIEU** (April, 1918), **DUCHAFFAULT** (Sept., 1918), **ENSEIGNE HENRY** (Nov., 1918), **DUCOUËDIC** (April, 1919). *Standard* displacement: 453 tons. Dimensions: $213\frac{1}{4}$ (*o.a.*) × 27 × 10 feet (*max.* draught). Guns: **1**—5·5 inch, **1**—3·9 inch. S.H.P.: 2,000 = 17·4 kts. Machinery: 2 sets of Breguet de Wooch turbines. 2 screws. Boilers: 2 Du Temple-Guyot. Oil: 143 tons = 1,985 miles at full speed. Complement: 74.

*Notes.*—Built under 1917–18 War Programme. Completed June, 1919—May, 1920. Sixth boat of this class, *Dècrès*, cancelled. Originally rated as "Anti-Submarine Gunboats" (*Canonniéres Contre Sous marins*). In build they are very like *Arras* class. *Dubourdieu* employed on Surveying Service. *Ens. Henry* was originally named *Dumont-D'Urville* and is now tender to Boy Artificers Training Establishment at Lorient. *Duperré* scrapped.



COUCY (Some have foremast abaft funnel). 1933 *Photo, R. Perkins, Esq.*

("ARRAS" CLASS.—13 SHIPS.)

*5 built at Navy Yards :—*

**ARRAS** (July, 1918), **YPRES** (ex-*Dunkerque*) (July, 1918), **REIMS** (Nov., 1918), all built by Brest D.Y. **NANCY** (Cherbourg D.Y., March, 1919), **BELFORT** (March, 1919), by Lorient D.Y.

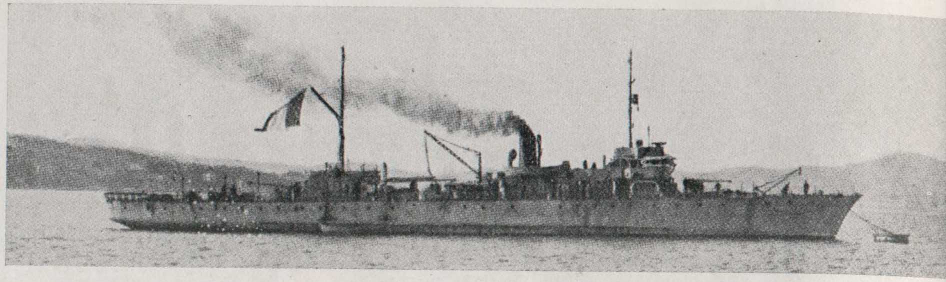
*8 built by Private Yards :—*

**LASSIGNY** (July, 1919) and **LES ÉPARGES** (September, 1919), both by Ch. de Bretagne, Nantes. **TAHURE** (——, 1919), by Ch. de la Loire, St. Nazaire. **COUCY** (June, 1919), **ÉPINAL** (August, 1919), and **VAUQUOIS** (August, 1919), all three by Ch. de St. Nazaire, Penhoët. **AMIENS** (May, 1919), and **CALAIS** (Nov., 1919), both by F. et C. de la Med., La Seyne.

Despatch and Anti-Submarine Vessels of 644 tons. Dimensions: 246 × 31 × 12½ feet. Guns: 2—5·5 inch, 1—3 inch AA., 2 M.G. Carry depth charges. Fitted with from two to four searchlights. Designed S.H.P.: 5,000 = 20 kts. Machinery: 2 sets Parsons (geared) turbines. 2 screws. Boilers: 2 Normand or Guyot- du Temple oil-burning (small tube). Fuel: 200 tons oil = Endurance: 1,000 miles at 17 kts; 3,000 at 11 kts. Complement: about 110.

*Notes.*—5·5 inch guns reported to be M.1910 (and perhaps M.1916), but *Épinal* is armed with two 5·5 inch guns rebored to fit Army shells. 5·5 inch have large degree of elevation; *max.* range 17,000 metres. They are very roomy and comfortable ships for their size, and their high bows make them very dry in head seas. But with sea on the beam they are said to roll "like old boots" (*comme des veritables-sabots*), owing to heavy topweight of guns, super-structure, etc. These vessels can make their speed on light draught in good weather, but in a seaway they drop down to 13 kts. Built under Programme VI and VII of 1917 and mostly completed 1919–21, though *Reims* was not finished till 1924. *Ypres* and *Reims* employed on surveying duties; *Les Éparges* as instructional tender, *Nancy* for target towing; each has 1—3 inch gun only. *Belfort* is Seaplane Tender, with 1—5·5 inch, and a crane aft.

*Bar-le-Duc* lost, December 1920; *Baccarat, Montmirail*, scrapped 1933; *Béthune, Epernay*, 1934; *Craonne, Liévin, Lunéville, Mondement, Péronne, Toul, Vimy, Vitry-le-François*, 1935, *Remiremont*, 1936; *Bapaume, Révigny*, 1937. *Laffaux* now accommodation hulk at Brest.



YSER (& MEUSE). (*Aisne* and *Marne* have 2 funnels.) 1920 *Photo, M. Bar, Toulon.*

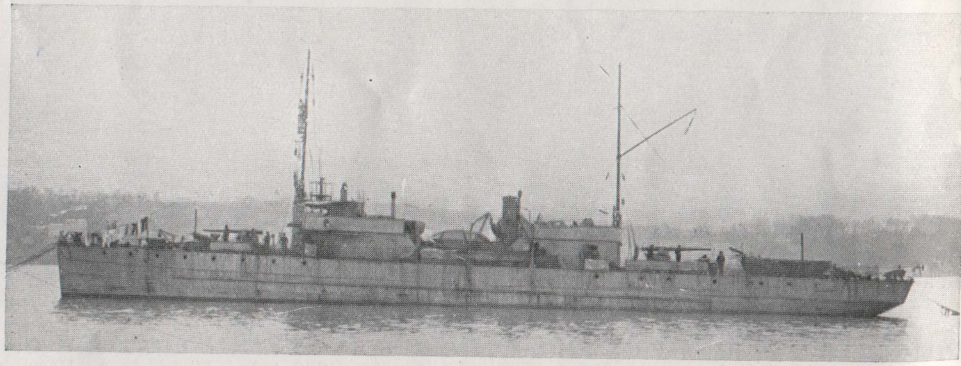
**AISNE** (Lorient D.Y., July, 1917).
**MARNE** (Lorient D.Y., Nov., 1916).
**MEUSE** (Rochefort D.Y., June, 1917).
**SOMME** (Brest D.Y., March, 1917).
**OISE** (Brest D.Y., Oct., 1916).
**YSER** (Rochefort D.Y., Jan., 1917).

Rated as *Avisos, 2e classe*

Though the design of these Despatch Vessels is uniform, the latitude allowed to the building yar has resulted in differing appearances. Vessels built by same yard have the same appearanc

Despatch Vessels, displacing 575-600 tons. Dimensions: 256 (*o.a.*) × 29¼ × 11 feet. Armament 4—3·9 inch, 2—65 m/m. in all. Designed I.H.P. 4000=20·5 kts. (5000=21 in *Aisne* ar *Marne*). Machinery: 2 sets geared turbines. Boilers: 2 du Temple. 2 screws. Oil fue 135 tons, 145 tons in *Aisne* and *Marne* = 4000 miles at 10 kts. Complement, 107. A built under 1916 War Programme.

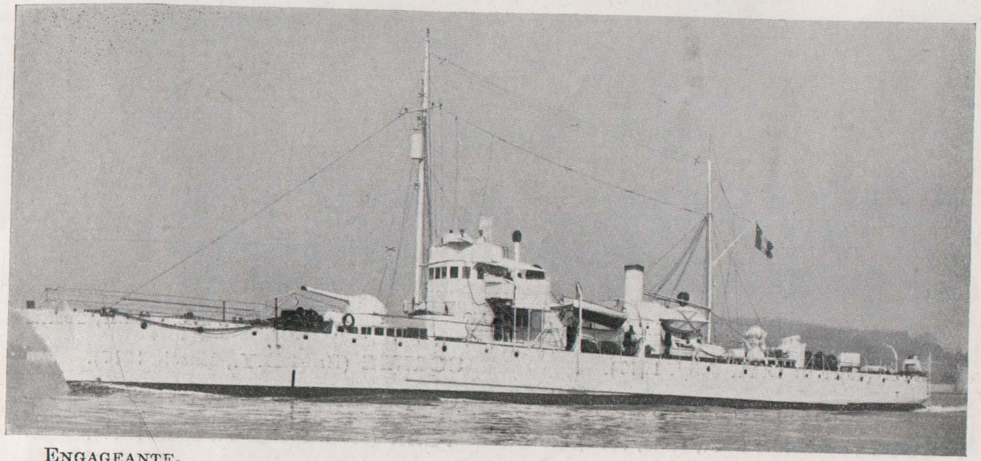
*Note.*—*Yser* employed in hydrophone experimental work in conjunction with submarines.



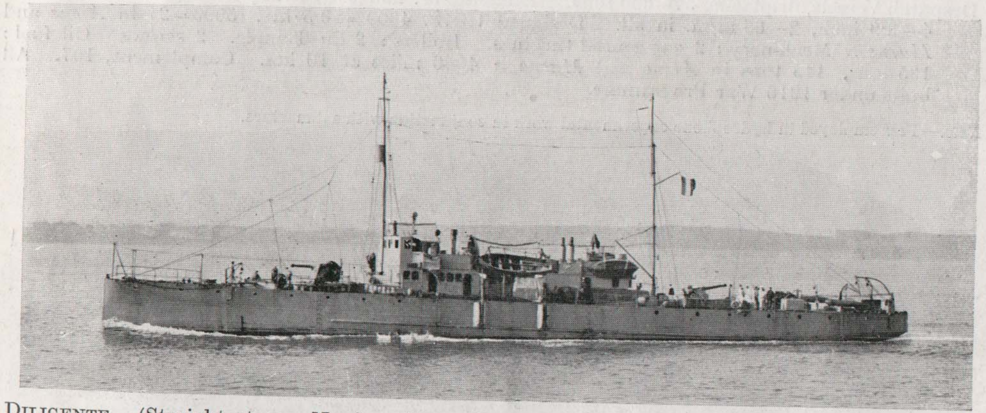
CONQUÉRANTE. Note that masts are stepped well to starboard of centre line.

**CONQUÉRANTE** (1917). Brest D.Y. 374 tons. Dimensions: 217¾ (*o.a.*) × 26 × 9¼ feet Guns: 2—3·9 inch. Carry D.C. Machinery: 2 sets of Sulzer-Diesel engines. B.H.P.: 1,50 = 17 kts. Oil fuel: 30 tons. Complement: 54.

*Vaillante* scrapped 1932.



ENGAGEANTE.
Distinguished from *Conquérante* by yacht stem. 1935.



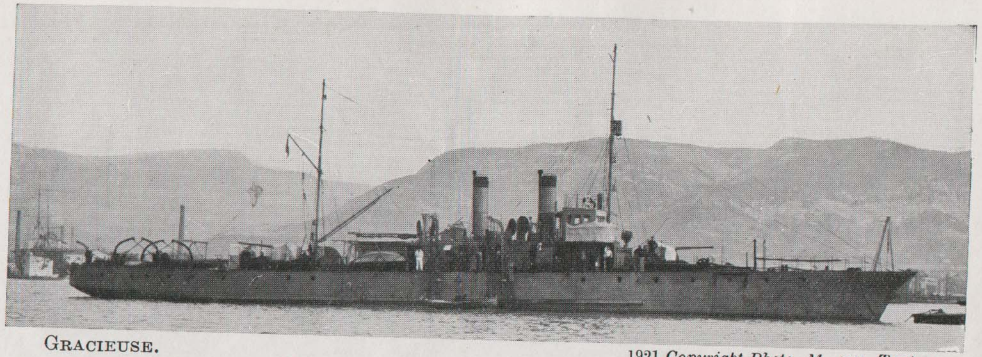
DILIGENTE. (Straight stem. No funnel).
LURONNE. (Yacht stem and thin funnel.) 1921 *Photo, Dussau, Toulon.*

FRIPONNE type :—3 Diesel-engined boats.

**DILIGENTE** (Brest D.Y., 1916). **ENGAGEANTE** (Brest D.Y., 1917). **LURONNE** (Brest D.Y., 1917). Displacement : 315 tons, except *Luronne*, 265 tons. Dimensions : Vary, as noted at foot. Guns : **2**—3·9 inch. Carry D.C. and may also be equipped as Minesweepers. B.H.P. : 900* = 15 kts. Machinery : 2 sets 450* B.H.P. Sulzer*-Diesel engines. Oil : 30 tons = 3,000 miles at 10 kts., 1,600 miles at 15 kts. Complement, 54.

*Notes.*—Generally the same design as the *Ardent* type (steam-driven) boats in next column, but above 3 boats have Diesel engines. All built under 1916 War Programme, except *Luronne*, of 1917 Programme. *Chiffonne, Friponne, Impatiente* and *Mignonne* sold to Rumania, January, 1920 : *Bouffonne* scrapped and *Surveillante* condemned, 1937. Following are respective dimensions : *Diligente, Engageante*, 217¾ × 23 × 9¼ feet ; *Luronne*, 197½ × 23½ × 9½ feet.

**Luronne* has two Fiat type Diesel engines of 650 B.H.P., total H.P. 1300, which are reported to have given a speed of 13·8 kts. She is employed as tender to the training establishment for boy artificers at Lorient.



GRACIEUSE. 1921 *Copyright Photo, M. Bar, Toulon.*

(ARDENT type—5 Steam-engined boats.)

**AUDACIEUSE** (Port de Bouc, 1917).
**DÉDAIGNEUSE** (Bordeaux, 1916).
**ETOURDI** (Lorient D.Y., 1916).
**GRACIEUSE** (Lorient D.Y., 1916).
**TAPAGEUSE** (Port de Bouc, 1916).

Displacement : 265 tons. Dimensions : 197½ × 23½ × 9½ feet. Guns : **2**—3·9 inch, **1**—3 pdr. *or* 1 M.G. Carry D.C. Machinery : Reciprocating. I.H.P. : 1,200 = 15 kts. Du Temple or Normand boilers. Fuel : 85 tons coal = 3,000 miles at 10 kts., 1,600 miles at full speed. Complement : 65.

*Notes.*—Note that masts are stepped well to starboard of the centre-line. *Moqueuse* wrecked, 1923. *Curieuse* condemned, 1926. *Belliqueuse* and *Emporté*, 1927. *Malicieuse* and *Éveillé*, 1932. *Inconstant*, 1933. *Agile, Alerte, Ardent, Capriceuse, Sans Souci*, 1935 ; *Batailleuse* and *Impetueuse*, 1937.

*Etourdi* differs from remainder of class, displacing 310 tons, with armament of **2**—5·5 inch and **1**—3 inch AA. and H.P. 1500 = 16·5 kts.

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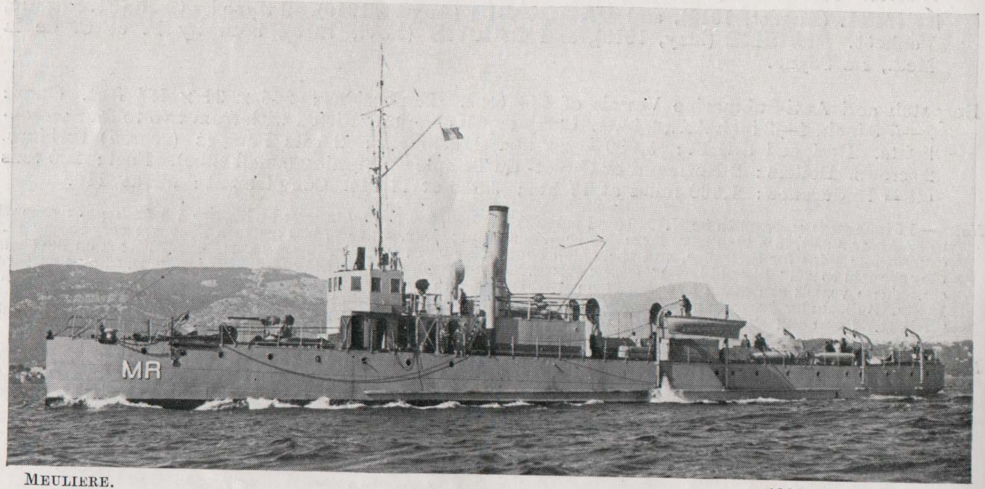
## Minesweepers (*Dragueurs de Mines*).



MEULIERE. 1936, *M. Le Masson.*

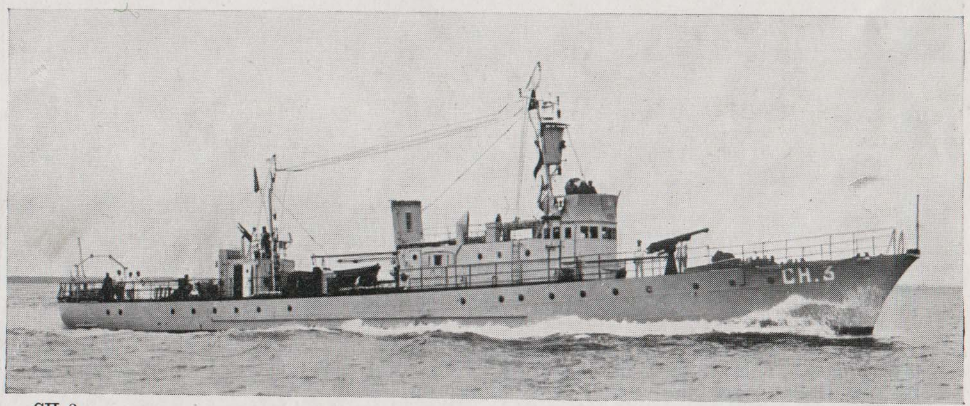
GRANIT CLASS—4 Steam-engined boats.

**GRANIT, MICA, QUARTZ, MEULIÈRE** (1918). 354 tons. Dimensions : 189 (*o.a.*) × 26 × 7½ feet. H.P. 550 = 12 kts. Guns : **1**—65 m/m. Coal : 73—90 tons. Complement, 63. *Porphyre* scrapped 1932.

## Submarine Chasers.

**CH 41—46.** Building by Ch. de Normandie, Fécamp, under 1937 Programme. 128 tons. Specially designed for use as Seaplane Escorts.

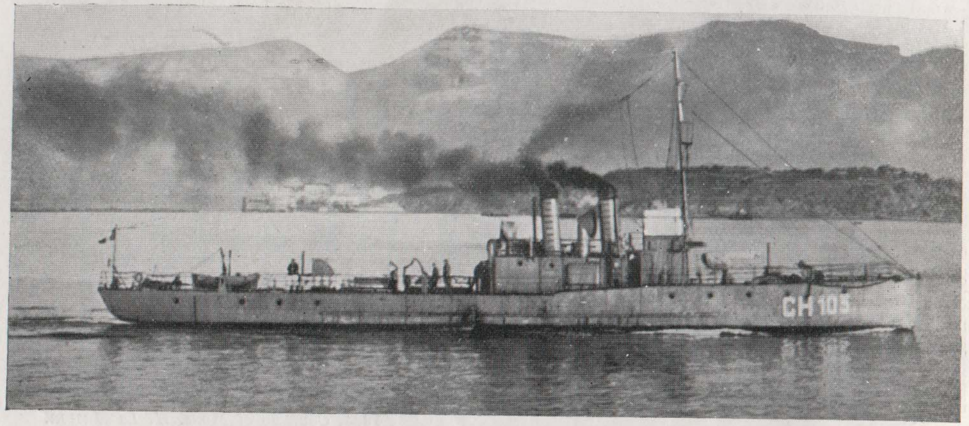
**CH 5—16.** Building by various private yards under 1937 Programme. 112 tons. Speed : 25 kts.



CH 3. 1936, *M. H. le Masson.*

4 *Ch. Bretagne* type : **CH 1, CH 2, CH 3, CH 4.** All launched at Nantes, 1934. Standard Displacement : 150 tons. Dimensions : 157½ × 17¾ × 5½ feet. Guns : 1—3 inch, 2 M.G. Depth charges carried. Sulzer-Diesels in CH 1 and 3, M.A.N. in CH 2 and 4. B.H.P. : 2,400 = 20 kts. Are fitted for mine-sweeping. On Trials CH 1 averaged 22·5 kts. with 2,624 H.P., others doing as well or better. All exceeded 20 kts. with ¾ power.

## Submarine Chasers (*continued.*)



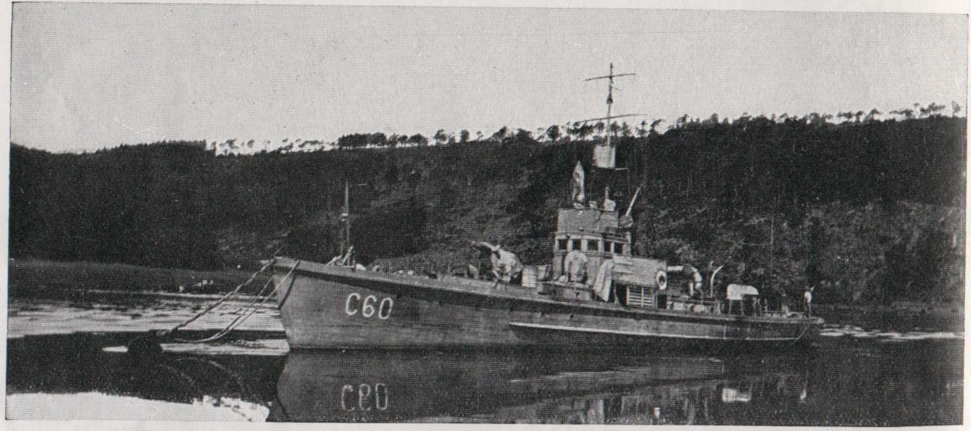
1930 *Photo.*

*Note.*—Funnels are slightly staggered, the foremost being to port and after one to starboard of the centre-line.

3 *Normand type* boats : **CH 106** (Normand, Le Havre, 1918–21). **CH 107** and **CH 115** (respective builders unknown).* 133 tons. Dimensions: 136⅚ (*p.p.*), 142 (*o.a.*) × 17⅙ × 8¼ feet (*max. draught*). Guns : 1—3 inch, 2 M.G. Designed I.H.P. 1300 = 16·5 kts. Triple expansions engines. 2 Normand boilers. Coal : 24 tons, except in ***CH 107***, 28 tons. Complement, 32. Contract for 2 other boats with Normand cancelled 1918. ***CH 101*** swamped and sunk off Spanish Coast, December, 1920.

*Built by Chantiers de la Loire, Nantes, Chantiers Dubigeon, Nantes.

*Note.*—Former ***CH 111*** and ***CH 112*** have been given respective names of *Commandant Bourdais* and *Avalanche* and adapted for service as river gunboats in Indo-China.

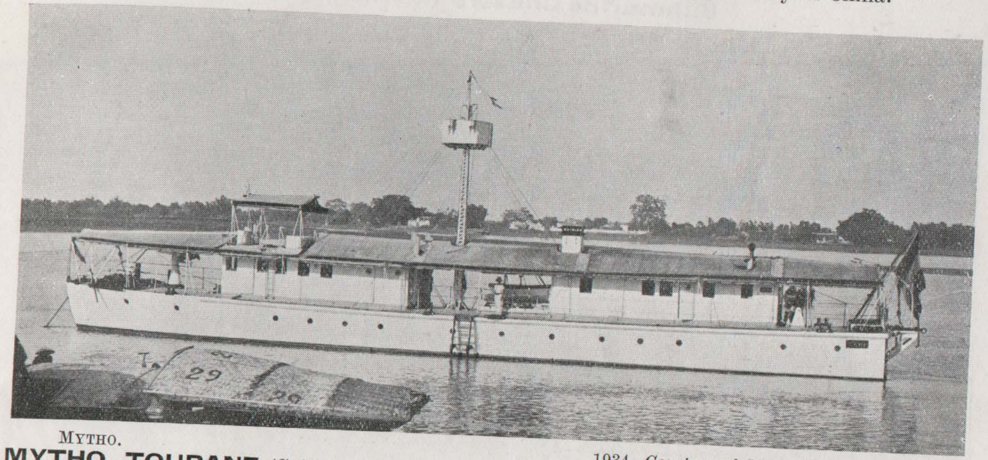


1920 *Photo, H. Freuna, Brest.*

6—100 *foot type* : **C 25, 51, 56, 74, 95, 98.** Built by U.S. Navy Yards and smaller shipbuilding firms, 1917–18, for U.S. Navy as *SC*5—*SC*404, but contracts transferred to French Government. *Designed* displacement : 54 tons. *Standard* figure, 60 tons. Dimensions : 105 (*p.p.*), 110 (*o.a.*) × 15½ × 7½ feet (*maximum* draught). Machinery : 3 sets of 220 B.H.P. Standard petrol motors, totalling 660 B.H.P. = 17 kts. Petrol : 2,400 gallons = 900 miles at 10 kts. Armament : 1—3 inch (14 pdr.) field gun converted to naval mounting, but some have one of smaller calibre. Carry depth charges. Complement : 26.

*C* 96 lost December, 1931, *C* 91 sunk by bombs from Spanish aircraft in October, 1937. Many others scrapped.

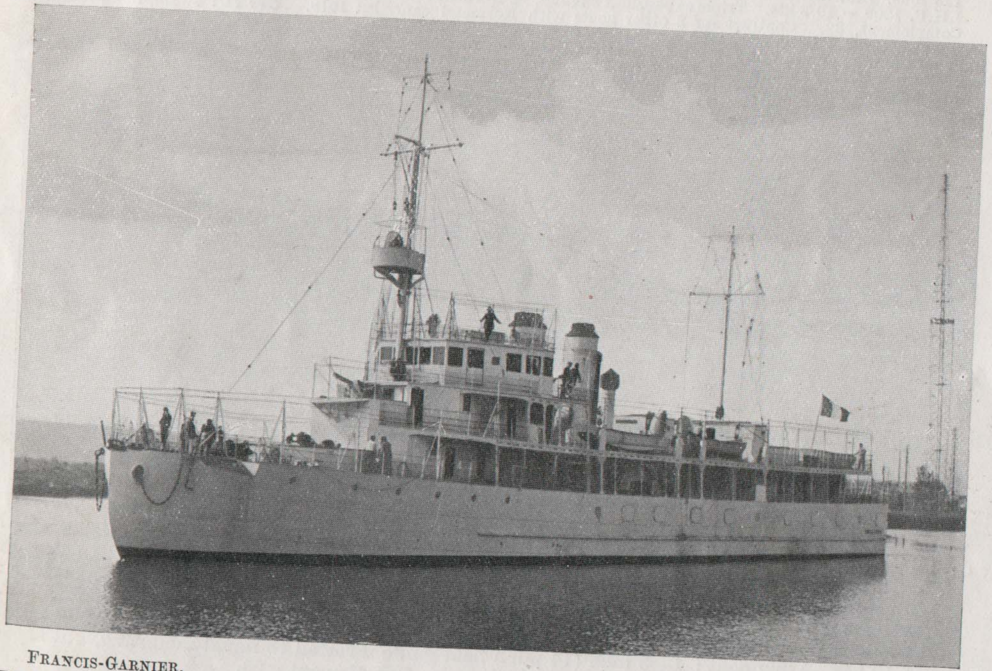
**JOUFFROY d'ABBANS.** 400 tons. Dimensions : $154\frac{1}{4} \times$ —— $\times 5\frac{1}{4}$ feet. Guns : **2**—3 inch, 8 M.G. H.P. : 2,000 = 15 kts. To be laid down early in 1938, probably in China.



MYTHO.

1934, *Courtesy of Mons. H. Le Masson.*

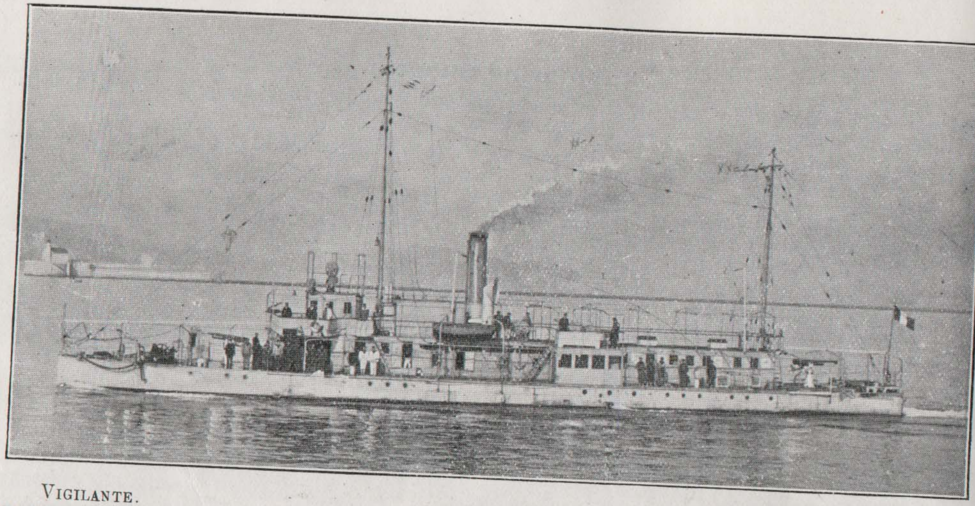
**MYTHO, TOURANE** (Saigon, 1933). Displacement : 95 tons (*Standard*). Complement : 16. Guns : **1**—3 inch Howitzer, **2**—37 mm., **2** M.G. 1 D.C.T. Machinery : 2 Diesels. H.P. : 250 = 10 kts. Radius : 560 miles at 10 kts.



FRANCIS-GARNIER.

1930 *Photo, by favour of M. Henri le Masson.*

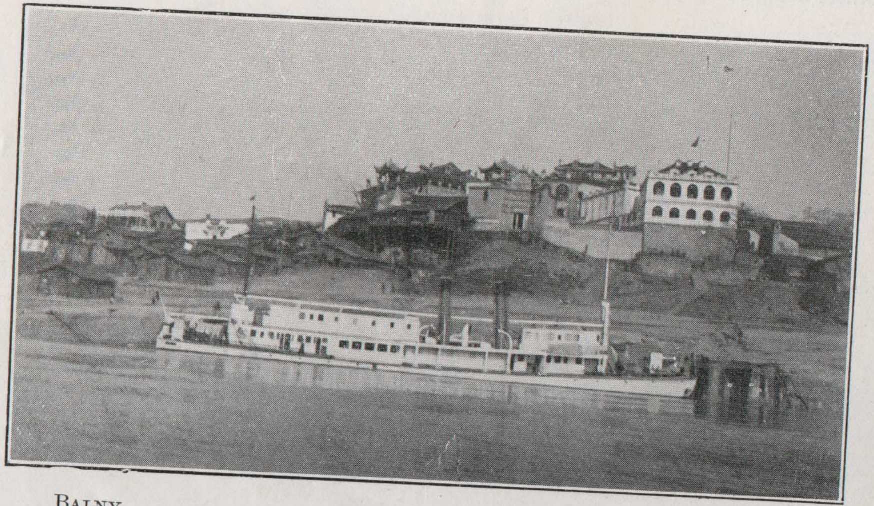
**FRANCIS-GARNIER** (Dec. 7, 1927). River Gunboat, for Lower Yangtse, ordered 1926 from Chantiers Navals Français, Blainville. Displacement, 639 tons. Complement, 103. Dimensions : $196\frac{3}{4} \times 33\frac{3}{4} \times 7\frac{1}{4}$ feet. Guns : **2**—4 inch, **1**—3 inch AA, **2**—2 pdr., **4** M.G. 2 sets triple expansion, H.P. 3200=15 kts. 2 Du Temple boilers. Oil fuel : 100 tons. Completed in 1929.



VIGILANTE.

1924 *Photo, A. Dussau, Toulon.*

**ARGUS, VIGILANTE** (1922, Toulon, D.Y.). 218 tons. Dimensions : 170 (*o.a.*) $\times 25\frac{1}{4} \times$ 4 feet (*max.*). Guns : **2**—3 inch, **2**—37 m/m., **4** M.G. I.H.P. : 550 = 12 kts. 2 screws and 2 boilers. Bullet-proof plating over conning position and W/T cabinet. Ammunition carried : 300 rounds per 14 pdr., and 50,000 cartridges. Complement : 42.



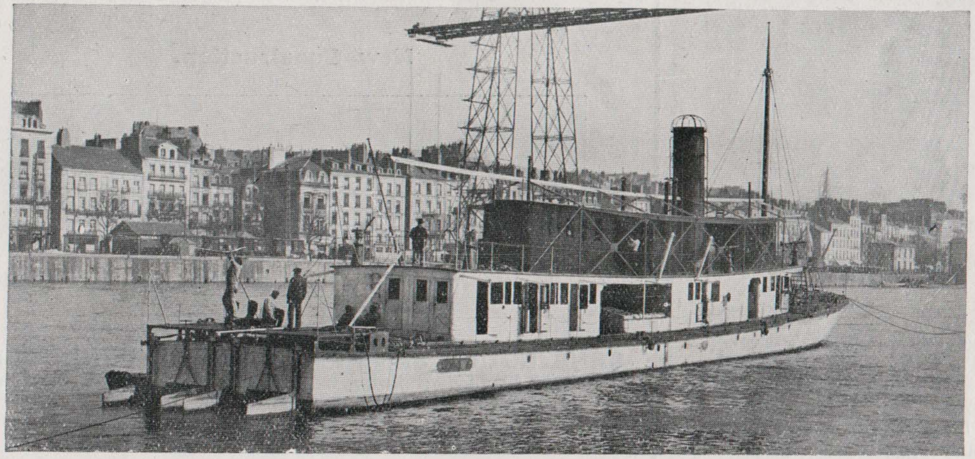
BALNY.

*Photo added* 1927, *by favour of* " *Revue Maritime.*"

**BALNY** (1920). Built by Chantiers de Bretagne, Nantes. 201 tons. Dimensions : $167\frac{1}{4} \times 23 \times 4\frac{1}{2}$ feet. Guns : **1**—3 inch, **2**—1 pdr., **4** M.G. Reciprocating engines. H.P. : 920 = 14 kts. 2 Fouché w.t. boilers. Coal : 45 tons. Complement : 49.

**AVALANCHE** (ex-*C.112*), **COMMANDANT BOURDAIS** (ex-*C.111*). (1921). 128 tons. Dimensions: 142 × 17 × 8¼ feet. Guns: 1—3 inch, 2 M.G. Triple expansion engines. I.H.P.: 1,300 = 16·5 kts.

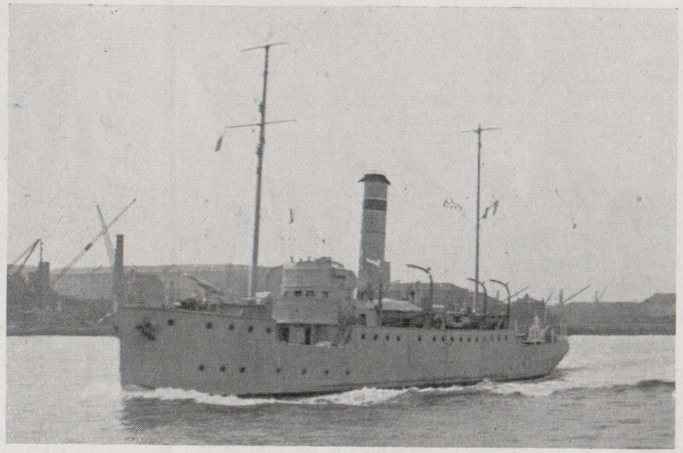
*Note.*—Ex-submarine chasers adapted for present service in Indo-China. Appearance as illustration on an earlier page.



1920 *Photo, Ch. de Bretagne.*

**DOUDART DE LAGRÉE** (1909). 183 tons. Dimensions: 167¼ × 22½ × 4¼ feet. Guns: 1—3 inch (field type), 2—37 mm., 4 M.G. Reciprocating engines. H.P.: 900 = 14 kts. 2 Fouché w.t. boilers. Coal: 45 tons. Complement: 59. Built by Chantiers de Bretagne, Nantes.

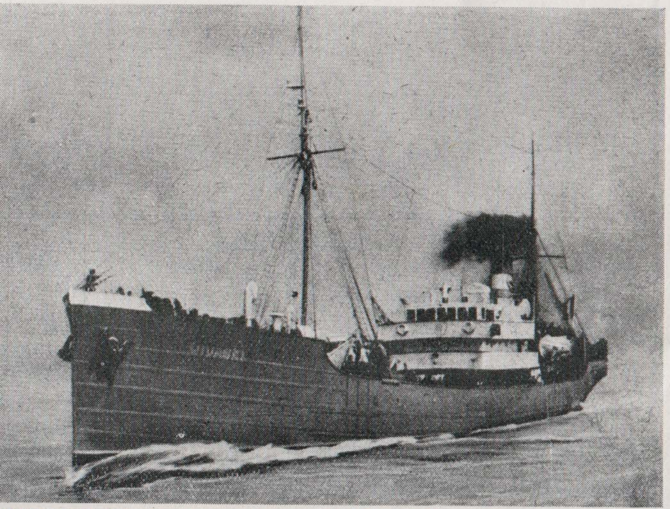
## Fishery Protection Vessels.



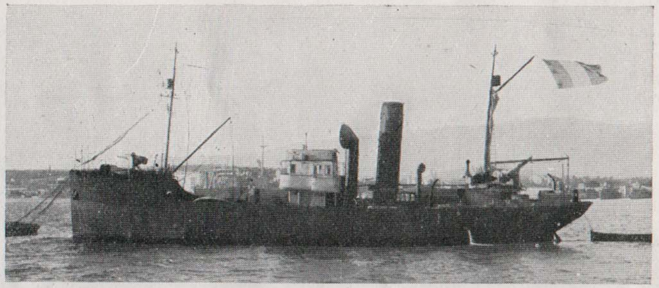
Q. ROOSEVELT. (*On North Sea Fishery Protection Service.*) 1937 *M. Davenport, Esq.*

**QUENTIN ROOSEVELT** (ex-*Flamant*, Rochefort D.Y., December, 1916). Despatch Vessel of 585 tons. Dimensions: 154 × 27½ × 14½ feet. Guns: 1—3 inch., 1—3 pdr. I.H.P. 1100 = 13 kts. Coal: 100 tons = 1500 miles at 10 kts. Complement, 53. Was begun 1913, stopped 1914-17 completed April, 1918.

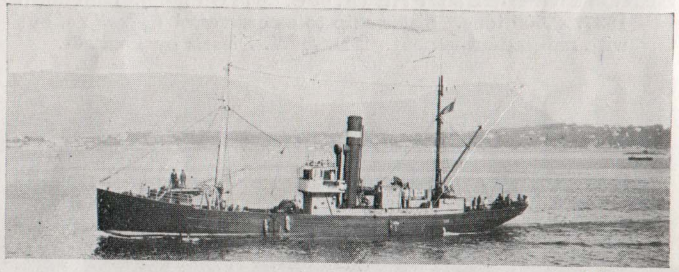
*Note.*—Sloops *Ville d'Ys* and *Ailette*, recorded on earlier pages, are also employed on Fishery Protection duties.



**AUSTRAL** (ex-*Léon Poret*), **BOREAL** (ex-*Remy-Chuinard*). (La Ciotat, 1927). Ex-Trawlers, purchased 1937, and converted into Patrol Vessels at Lorient. 1,096 tons *gross*. Dimensions: 208 × 33½ × 15 feet. Machinery: Triple expansion. H.P. 1000 = 10 kts. Oil fuel.



**FAUVETTE II** (1916). 315 tons. Dimensions: 131¼ (*p.p.*), 142¾ (*o.a.*) × 24 × 12 feet. No Guns. I.H.P.: 500 = 10 kts. Coal: 120 tons. Complement, 23.



1935.

**PRIMEVÈRE** (1912). 490 tons. Dimensions: 116 × 22 × 14 feet. No Guns. H.P. 450 = 8·5 kts. 1 screw. Coal: 30 tons.

**CHIMÈRE** (ex-*Zelée*, ex-*Huron*) (1901). Ex-Tug of 613 tons I.H.P. 880 = 14 kts.

## Submarine Depot Ship.

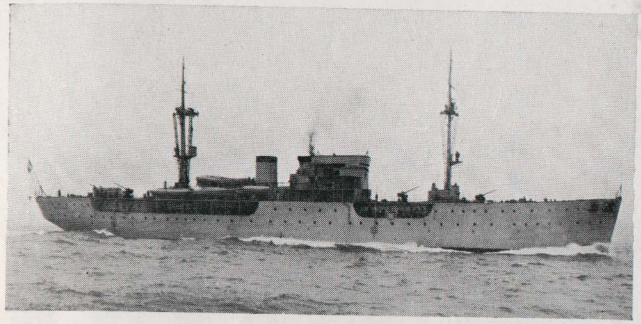


*Photo* 1932, *Official.*

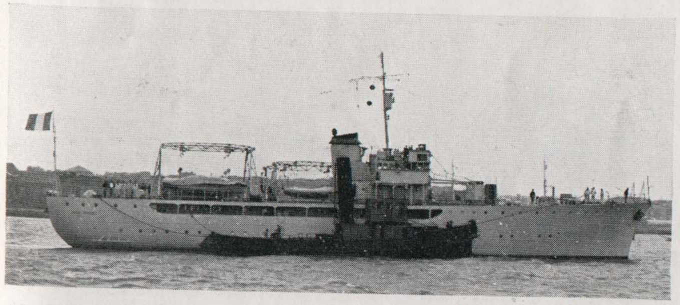
**JULES VERNE** (Lorient, Feb. 3, 1931). Displacement: 5,747 tons. Complement: 259. Dimensions: $377\frac{1}{2}$ (*p.p.*), $400\frac{1}{4}$ (*o.a.*) × $56\frac{1}{2}$ × 19 feet. Guns: **4**—3·5 inch AA., **4**—37 mm. AA. 2 sets Sulzer-Diesels. 2 shafts. B.H.P.: 7,000 = 16 kts. Equipped for the supply and maintenance of a flotilla of 6 submarines, with accommodation for their personnel, numbering 265, in addition to ship's own complement.

## Surveying Vessels.

Usually commissioned for the six months April—November, and reduced to Reserve during other six months of the year.

*Notes.*—4 sloops, *Altair, Dubourdieu, Reims* and *Ypres*, employed on this service, will be found on earlier pages.

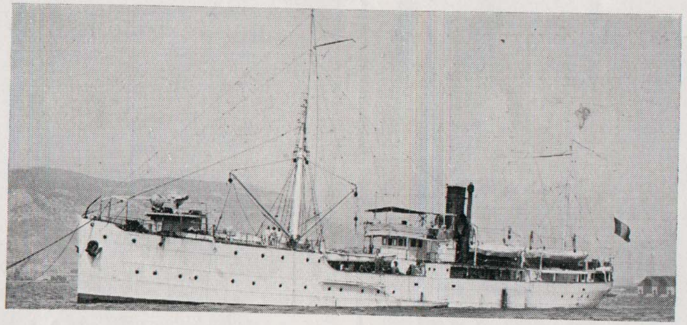
**BEAUTEMPS-BEAUPRÉ** (A. et C. de la Gironde). Laid down 1937. 2,000 tons. Sister ship to escort vessel *Ville d'Ys*, but with reduced armament. 2 B. & W. Diesels by Penhoët.



1937, *Capt. M. Adam.*

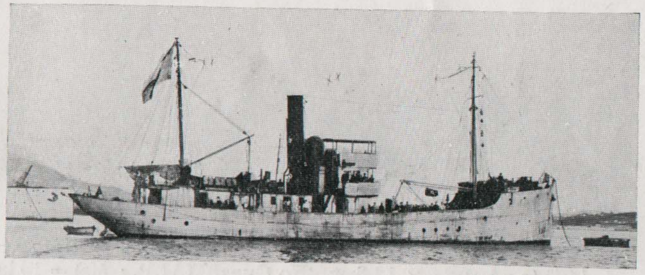
**AMIRAL MOUCHEZ** (Aug. 3, 1936). Laid down at Cherbourg, Jan., 1935. Displacement: 719 tons. Dimensions: $203\frac{1}{2} \times 33\frac{3}{4} \times$ feet. Guns: **1**—3 inch. 1 Sulzer Diesel. B.H.P.: 800 = 12 kts.

## Surveying Vessels—*continued.*



1935.

**LA PÉROUSE** (launched 21st November, 1919). 781 tons. Dimensions: $196\frac{2}{3}$ (*p.p.*) × $27\frac{3}{4}$ × $17\frac{3}{4}$ feet. Guns: **1**—3 inch AA. Triple expansion engines. I.H.P.: 1,100 = 11 kts. 2 w.t. boilers. Oil: 132 tons. Complement, 104. Ex-Navy Transport of the *Coëtlogon* class, built at Brest D.Y., and lengthened when transferred to surveying service.



1921 *Photo, M. Bar.*

**ASTROLABE** (ex-*Mauviette*), **GASTON RIVIER** (ex-*Ortolan*), **OCTANT** (ex-*Pivert*), **ESTAFETTE** (all 1918), **SENTINELLE** (1920). 460 tons. Dimensions: $142\frac{3}{4} \times 24 \times 13$ feet. Guns: **1**—47 mm. I.H.P.: 450 = 10 kts. Coal: 120 tons. Complement: 32.

## Aircraft Tenders.

*Note.*—The patrol vessel *Belfort* and the small transport *Hamelin* (des other pages) are also fitted for service as Aircraft Tenders, the rating being *Ravitailleurs d'Aviation.*

## New Construction.

*Building.*

**SANS SOUCI, SANS PAREIL, SANS PEUR,** **CRAINTE.** Building under 1937 Programme. Uno reported as about 1,000 tons.

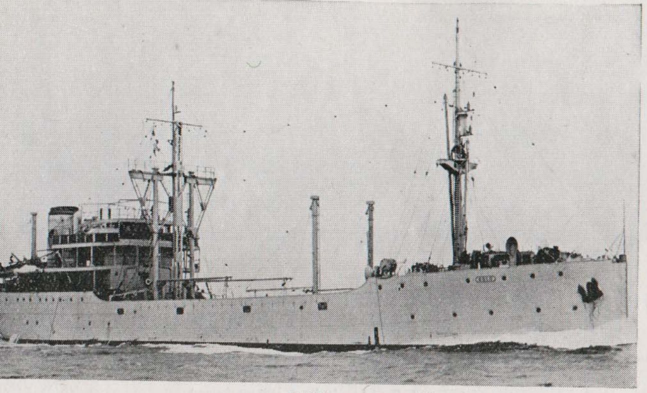
*Photo wanted.*

**PÉTREL** Nos. 1, 2, 3, 4, 5, 6, 7, 8 (1932–33). Displace 80 tons. Machinery: Diesel. H.P.: 270 = 11·5 Stationed at various points around the coast.

## Target Ship

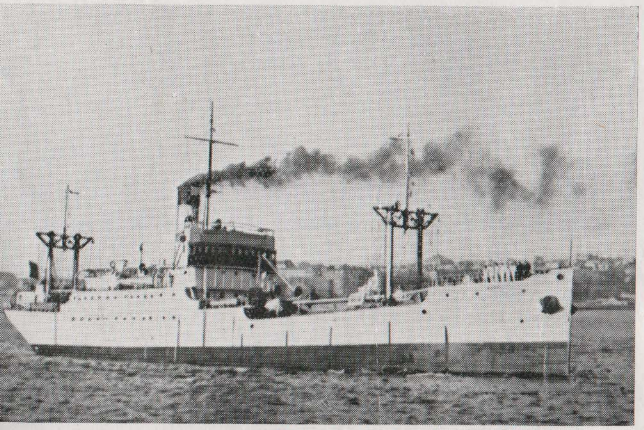
A wireless-controlled Target Ship of 2,500 tons is being bu Lorient under 1936 Programme. Ordered, Feb., Length: 300 feet.

## ransports (*Transports*), Supply Ships (*Soutiens d'Escadre*) and Refrigerator Ships (*Navires Frigorifiques*).



1935, *courtesy Mons. H. Le Masson.*

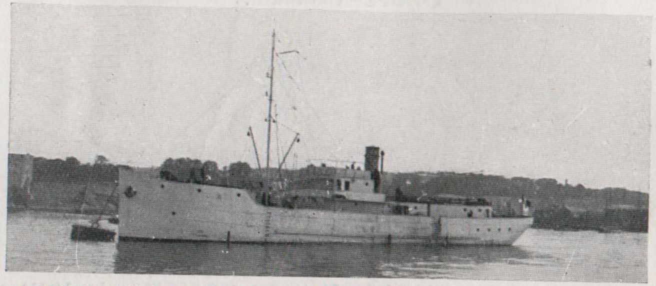
**OLO** (F. & C. de la Gironde, Bordeaux, July 8, 1933). Displacement: 2,152 tons *standard*; deadweight capacity: 1,300 tons. Dimensions: 274¾ (*p.p.*), 294½ (*o.a.*) × 44⅓ × 15¾ feet. Guns: **2**—3 inch, **2**—37 mm. AA. Machinery: 2 Burmeister & Wain Diesels by Penhoët. B.H.P.: 1,850 = 12·5 kts. (13 kts. on trials.) Has Yourkevitch special hull form.



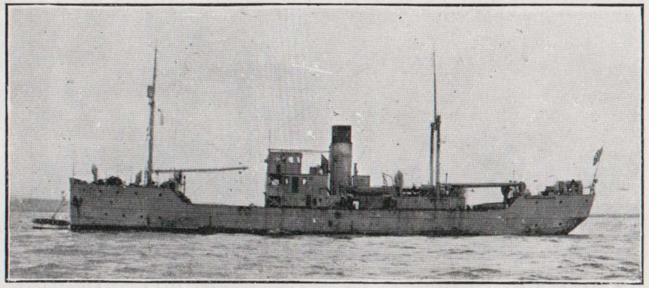
1936, *Capt. M. Adam (added* 1937).

**DE** (ex-*Chateau Lafite*). (Ch. de la Seine Maritime, 1924). Displacement: 1,820 tons. Deadweight capacity: 3,360 tons. Dimensions: 279¾ × 39½ × 20½ feet. Machinery: Triple expansion. I.H.P.: 1,600 = 10 kts.

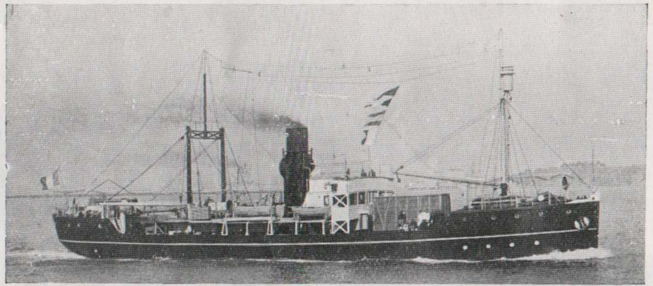
## Transports, Supply Ships, etc.—*continued.*



**CHAMPLAIN** (April, 1919), **ALLIER** (ex-*Primauguet*, April, 1919), both by Brest D.Y. 521 tons. Complement: 40. Dimensions: 167⅓ × 26¼ × 13¾ feet. Guns: **1**—3 inch. H.P.: 1,100 = 10 kts. Coal: 80 tons.



FORFAIT. 1927 *Photo, H. Freund.*



COËTLOGON. 1930 *Photo, M. Bar.*

**COËTLOGON** (June, 1919), **FORFAIT** (1920), **HAMELIN*** (1920), by Ch. de Bretagne, Nantes. 622 tons. Dimensions: 168 × 26 × 17 feet. Guns: **2**—3·9 inch, **1** M.G. I.H.P.: 1,200 = 12 kts. Triple expansion engines. 1 screw. 2 cylindrical boilers. Coal: 80 tons. 850 miles endurance.

* Usually employed as seaplane tender.

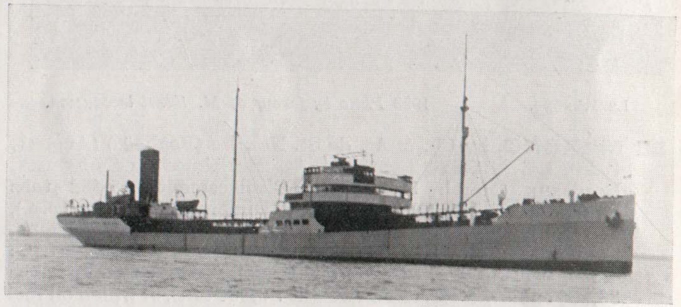
**JEANNE ET GENEVIÈVE** (1917). 620 tons. Dimensions: 147 × 24 × 12½ feet.

## Oilers (*Transports Pétroliers*).

BUILDING.

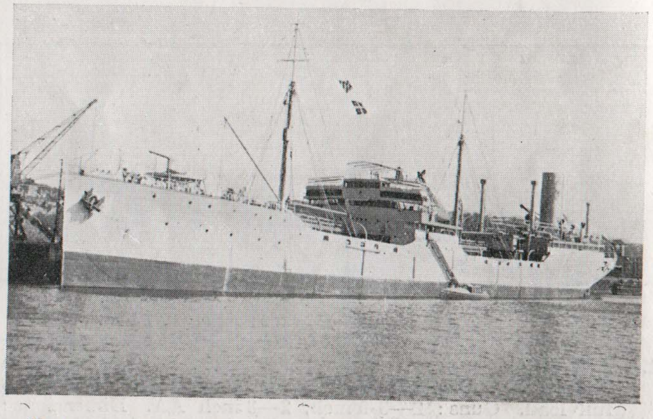
**ADOUR, LOT, TARN.** Building, *Adour* by Sté. Provencale des Constructions Navales, La Ciotat, other two by At. et Ch. de France, Dunkerque. Displacement: 4,500 tons, 7,000 tons *deadweight*. Draught: 20¾ feet. Machinery: Parsons geared turbines. H.P.: 5,200 = 16 kts. Radius: 10,000 miles at 13—14 kts. Provided for under 1936 and 1937 Programmes.

**ETHYLENE** (1937). 1,200 tons deadweight capacity. Dimensions: 202 × 40 × feet.



1935, *Capitaine M. Adam.*

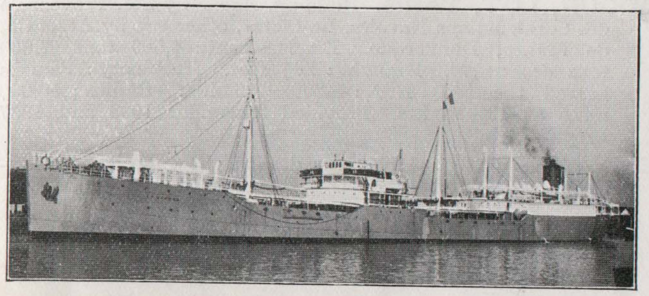
**NIVÔSE.** (Deutsche Werft A.G., Hamburg, 1931). Purchased in 1934. Displacement: 8,500 tons *standard*, 14,160 tons deadweight. Dimensions: 467 × 62 × 36½ feet. Guns: **2**—3·9 inch, **2**—37 mm. AA. Machinery: Quadruple expansion. 1 shaft. I.H.P.: 3,400 = 11 kts. Capacity for 14,500 tons.



VAR. 1932 *Photo, Capt. M. Adam.*

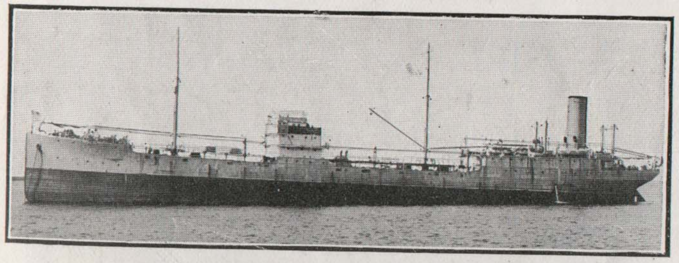
**VAR** (1931), **ELORN** (1930). Both built by Deutsche Werft A.G., Hamburg, on War Reparations account. Displacement: 5,482 tons *standard*. Full load, 15,150 tons. Complement: 75. Dimensions: 436¼ (*p.p.*), 456 (*o.a.*) × 61¾ × 30 feet. Guns: **2**—3·9 inch, **2**—1 pdr. AA., 2 B. & W. Diesels. H.P.: 4,850 = 13·5 kts. Capacity: 9,600 tons, arranged as in *Le Mékong* and *Le Niger*.

## Oilers.—*continued.*



Le Mékong. 1929 *Photo by favour of M. Henri le Masson.*

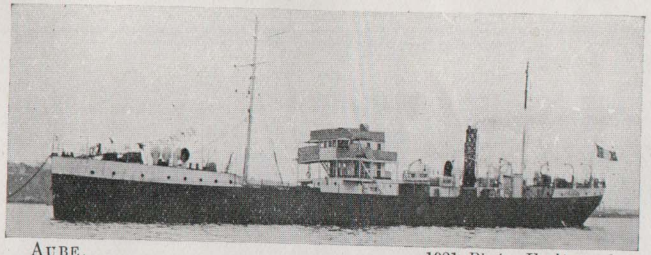
**LE MÉKONG,** by Ch. & At. de St. Nazaire (Penhoët) (Aug. 31, 1928), **LE NIGER,** by Ch. & At. Maritimes du Sud-Ouest, Bordeaux (March 14, 1930). Displacement: 5,482 tons *standard*; 15,150 tons *full load*. Dimensions: $436\frac{1}{4}$ (*p.p.*), 456 (*o.a.*) × $61\frac{3}{4}$ × 30 feet *max.* draught. Guns: 2—3·9 inch, 2—1 pdr. 2 sets Burmeister & Wain Diesel engines. H.P.: 4,850 = 13·5 kts. (6,000 on trials). Capacity of tanks: 33,900 cubic metres. Dead weight: 9,600 tons, of which oil fuel absorbs 9,000; distilled water, 500; lubricating oil, 100. Complement, 70.



1928 *Photo, R. Perkins, Esq.*

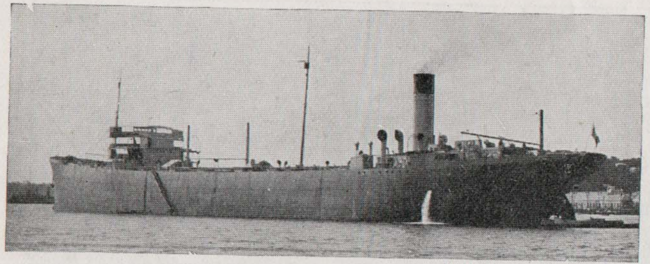
**LE LOING** (At. & Ch. de la Seine Maritime, Le Trait, 4th April, 1927). Displacement: 3,481 tons *standard*; 9,900 tons full load. Guns: 2—3·9 inch, 2—3 inch AA. Dimensions: $503\frac{1}{2}$ × $50\frac{1}{2}$ × 25 feet. 2 sets 4-cycle single-acting Diesel engines by Burmeister & Wain. H.P.: 4,100 = 13·5 kts. (exceeded on trials). Carries 5,900 tons oil. Constructed on Isherwood system. Complement, 70.

## Oilers—*continued.*



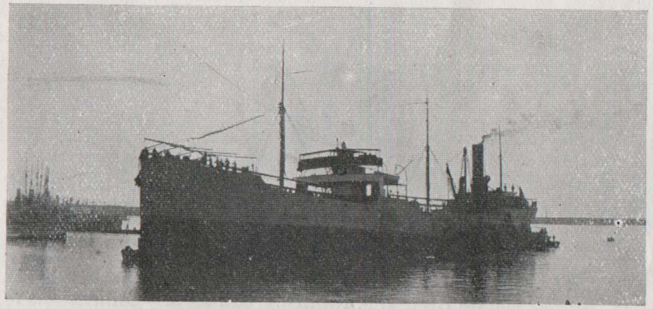
Aube. 1921 *Photo, H. Freund.*

**AUBE** (July, 1920), **DURANCE** (1920), **RANCE** (July, 1921), all by Lorient D.Y. 1,055 tons. Complement, 70. Dimensions: $242\frac{3}{4}$ × 38 × $15\frac{3}{4}$ feet. Guns: 2—3 inch AA. Machinery: Breguet turbines. S.H.P.: 1,000 = 10 kts. Radius: 1,580 miles at 10 kts. Capacity for 1,500 tons of oil.



1921 *Photo, H. Freund.*

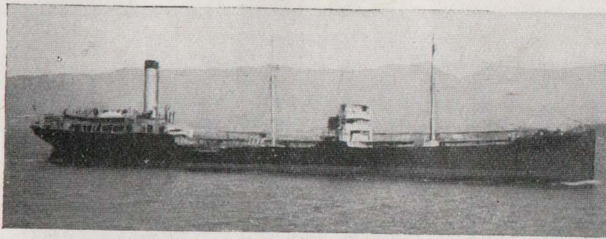
**DORDOGNE** (ex-*San Isidoro*, Armstrong, 1914). Displacement, 7,333 tons. 15,160 tons D.W. Carries 13,000 tons oil. Dimensions: 530 × $66\frac{1}{2}$ × 29 feet. Guns: 2—6·1 inch. H.P. 4,150 = 11·7 kts. Refitted in 1937.



1920 *Photo. H. Freund.*

**GARONNE** (1911). 3,533 tons. Dimensions: 394 × $50\frac{3}{4}$ × $27\frac{1}{4}$ feet. Guns: 2—3·9 inch. H.P. 2,600 = 13 kts. Carries 5,800 tons oil as cargo. Complement, 65.

## Oilers.—*continued.*



1931 *Pho*

**RHÔNE** (1910). 2,785 tons. Dimensions: 369 × 45 × 25
H.P.: 2,100 = 11 kts. Carries 4,000 tons oil as ca
Complement: 57.

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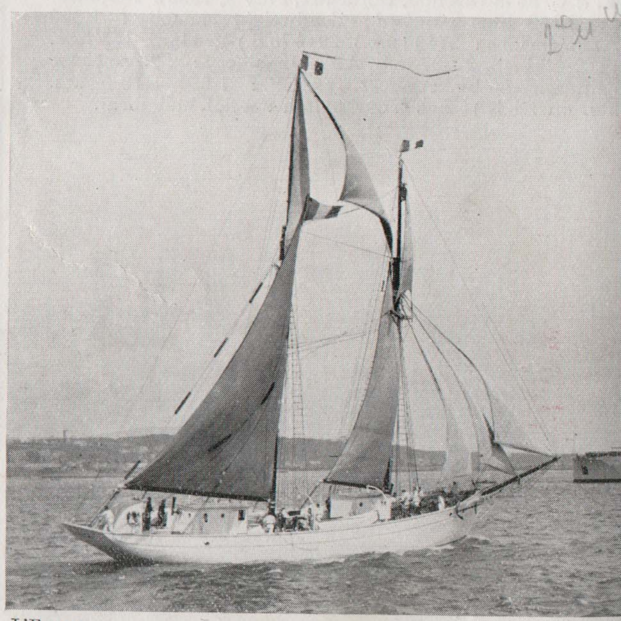
## Sailing Vessels.

(Used for training purposes)



L'Etoile 1936, *M. Le Ma*

**LA BELLE-POULE, L'ÉTOILE.** Both built by Chantiers
Normandie (Fécamp) 1932. Dimensions: 128 (*o.a.*) × 23
$11\frac{3}{4}$ feet. Displacement: 215 tons. Accommodation fo
officers, 30 cadets, 5 petty officers, 12 seamen. Machine
Sulzer-Diesels. B.H.P.: 120 = 6 kts.

**ZÉLÉE** (purchased 1931). 122 tons. Dimensions: 151 × 29
10 feet. Machinery: 2—40 H.P. oil engines = 10 kts. Gu
1—3 pdr. For service in Oceania and Tahiti.

**ALOUETTE** (1929). 44 tons. Dimensions: 60 × $20\frac{1}{3}$ × 10 f

**MESANGE** (1921). 60 tons. Dimensions: $56\frac{3}{4}$ × $21\frac{1}{2}$ × 10 f

**MUTIN** (1883). 51 tons. Dimensions: $66\frac{1}{4}$ × 20 × $10\frac{3}{4}$ f

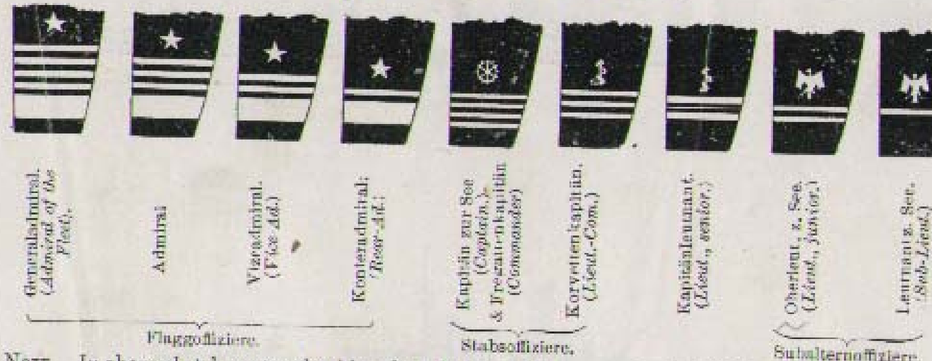
**RAILLEUR** (1884). 52 tons. Dimensions: 65 × $34\frac{1}{2}$ × 9 f

# GERMANY

*Minister for War :* Generalfeldmarschall von Blomberg.
*Chief of Admiralty :* Generaladmiral Dr. (h.c.) E. Raeder.
*Naval Attaché :* Kapitän z. See L. Siemens.

## Uniforms.

INSIGNIA OF RANK ON SLEEVES


Generaladmiral. (Admiral of the Fleet).
Admiral
Vizeadmiral. (Vice Ad.)
Kontreadmiral. (Rear-Ad.)
Kapitän zur See (Captain), & Fregattenkapitän (Commander)
Korvettenkapitän. (Lieut.-Com.)
Kapitänleutnant. (Lieut., senior.)
Oberleut. z. See. (Lieut., junior.)
Leutnant z. See. (Sub-Lieut.)
Flaggoffiziere.
Stabsoffiziere.
Subalternoffiziere.

NOTE.—In above sketch, a *star* should replace devices which appear in the 5 junior ranks.

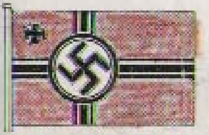
Uniforms and distinguishing marks of rank are the same for officers of all branches of the service; but in place of the star on the sleeve, which distinguishes the military branch, there is worn by:

Engineer Officers, a pinion wheel
Medical Officers, the rod of Æsculapius } As in sketch above.
Accountant Officers, the winged staff of Hermes

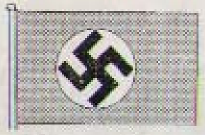
The difference between a *Kapitän zur See* and a *Fregattenkapitän* is indicated by stars on the shoulder straps.

*Kommodores* wear the same sleeve stripes as a *Kapitän zur See*, but with the cords and shoulder bands of a Flag Officer.

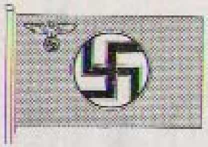
## Flags.



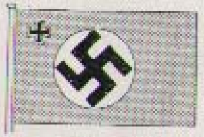
ENSIGN



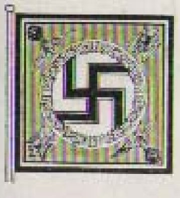
NATIONAL FLAG AND JACK



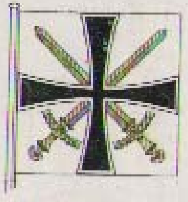
STATE SERVICE FLAG



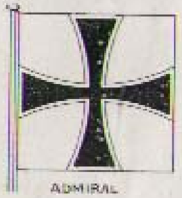
NATIONAL FLAG FOR MERCHANT SHIPS COMMANDED BY NAVAL RESERVE OFFICERS



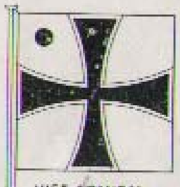
FUHRER'S STANDARD



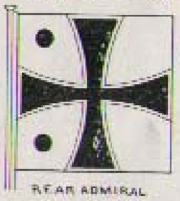
C-IN-C. OF NAVY



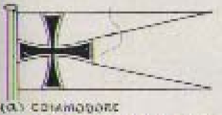
ADMIRAL



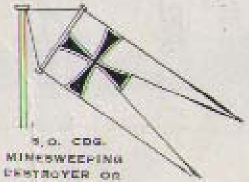
VICE ADMIRAL



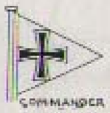
REAR ADMIRAL



(a) COMMODORE WHEN FLOWN FROM MAIN MAST
(b) SENIOR OFFICER WHEN FLOWN FROM OFF' SIGNAL YARD



S.O. CDG. MINESWEEPING DESTROYER OR SUBMARINE FLOTILLAS



COMMANDER OF A FLOTILLA

WHEN FLOWN FROM MAIN MAST, BUT LEADER'S PENNANT WHEN FLOWN FROM UPPER SIGNAL YARD

PENNANT

*Black* ■
*White* □
*Yellow* ▥
*Red* ⬚

## Naval Guns.

| Calibre | Usual Naval Designation. | Length in cals. | Date of Model. | Weight of Gun. | Weight of A.P. shot. | Initial Velocity. | Maximum penetration, direct impact against K.C. at |  |  | Danger space against average ships at |  |  | Approximate Muzzle Energy. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  | 9000 yds. | 6000 yds. | 3000 yds. | 10,000 | 5000 | 3000 |  |
| inch.<br>11<br>11 | c/m.<br>*28*<br>*28* | ...<br>40 | '28<br>'01 | tons.<br>...<br>32·2 | lbs.<br>670<br>661·4 | foot-secs.<br>...<br>2756 | in.<br>...<br>6 | in.<br>...<br>10 | in.<br>...<br>14 | yards.<br>...<br>150 | yards.<br>...<br>450 | yards.<br>...<br>740 | foot to<br>...<br>31,60 |
| 8 | *20.3* |  |  |  |  |  |  |  |  |  |  |  |  |
| 5·9<br>5.9<br>5. | *15*<br>*15*<br>*12.7* | 50<br>45 | ...<br>'09 | 5·5<br>5 | 101·4 | 3084<br>2920 | ...<br>... | ...<br>... | ...<br>5 | ...<br>... | ...<br>200 | ...<br>420 | 6,69<br>5,99 |
| 4·1 | *10 5* | 45 | '16 | ... | 38·2 | ... | ... | ... | ... | ... | ... | ... | ... |

Brass cartridge cases to all guns.

15 inch in new 35,000 ton battleships.

*Lesser guns :* 3·4 inch (88 m/m) firing 22 lb. projectiles in modern and 15 lb. in old models.

*AA. guns :* 4·1 inch, 3·5 inch on H.A. mounts ("Flak").

*Projectiles :* Guns of 11 inch and over fire A.P., Ersatz A.P., H.E., and common shell.

The 1899 and later models have the recoil utilized to return the gun to firing position for pieces over 6 inch. In 6 in. springs are employed. German guns have a lower muzzle pressure than normally obtains.

11 inch, 40 cal., M. '01 in *Schlesien* and *Schleswig-Holstein*.

## Personnel.

Total personnel, 1937, 3,000 officers; 43,600 men.

## Colour of Ships.

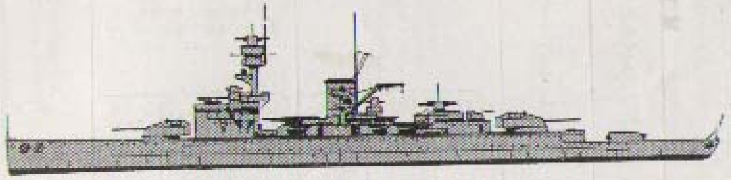
Light Grey, *except* Sail Training Ships, which are white with yellow superstructures.

## Mercantile Marine.

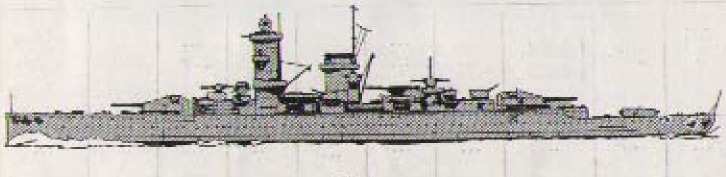
(From "Lloyd's Register." 1937 figures.)
2,191 vessels of 3,937,241 gross tonnage.

## Navy Estimates.

1930-31, 191,597,200 marks
Later figures not communicated. { 1931-32, 191,855,550 "
1932-33, 187,339,400 "
1933-34, 186,243,200 "

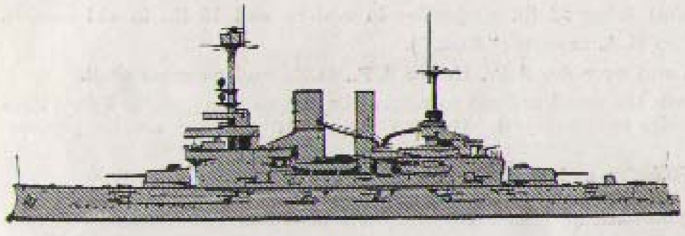


Deutschland.

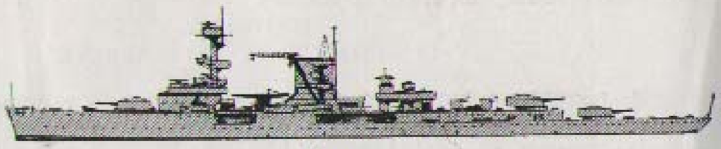


X-J

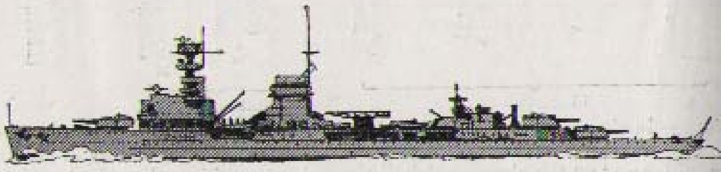
Scheer.
Spee.



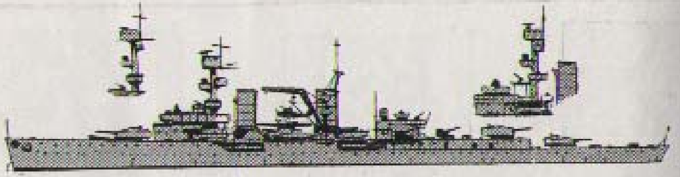
Schlesien.
Schleswig-Holstein.



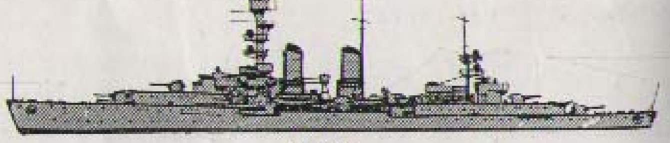
Leipzig



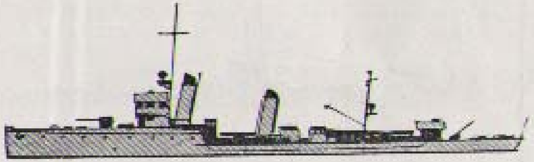
Nürnberg.



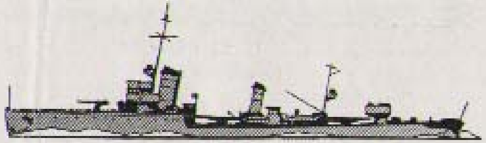
Köln *Class.*
(Insets : Königsberg left ; Karlsruhe right).



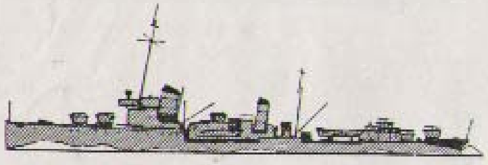
Emden.



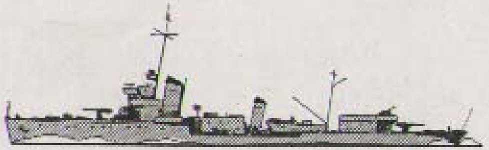
G 7. 8. 10. 11.
(T 23 similar but no armament.)



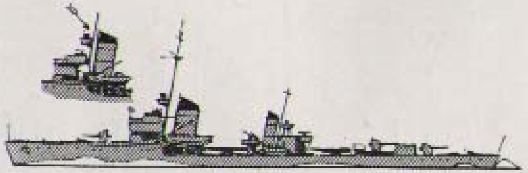
T 190.



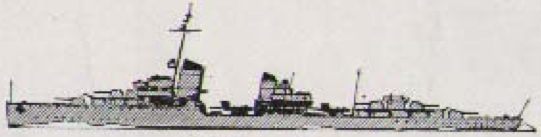
T 153 *Class.*



T 196.



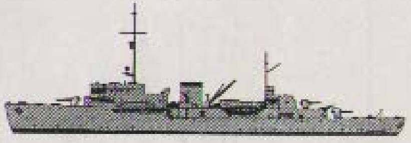
Wolf *Class.*
(Möwe *Class* as part sketch.)



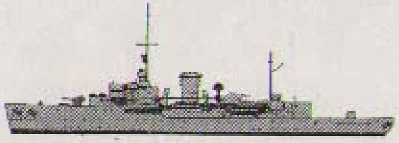
L. Maass *Class.*

Мор. сбор. 2/46

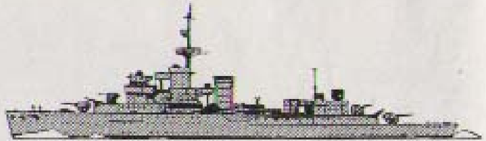
| Раздел | СССР | США | Англ. | |
|---|---|---|---|---|
| Кр. – | Nürn. | Pr. Eug. | — | 2 |
| Z | 4 | 1 | 8 | 13 |
| T | 6 | 6 | 5 | 17 |
| П/л . | 10 | 10 | 10 | 30 |
| Тщ тип M | 44 | 44 | ~ | 132 |
| Эскорт тип F | 5 | | | 17 |
| ПВО и [illegible] | 3 | | | 8 |
| ТК тип S | 30 | | | 89 |
| Мотб. тип R | 48 | | | 144 |
| | 155 | 149 | 148 | 452 |
| Всего | 531 | 441 | 397 | 1339 |
| | (100) | (101) | (93) | [illegible] |



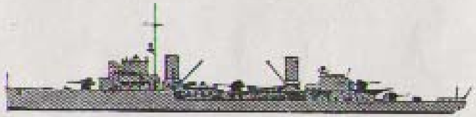
Saar.



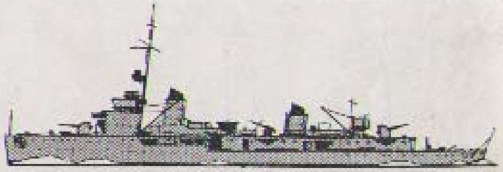
Tsingtau.



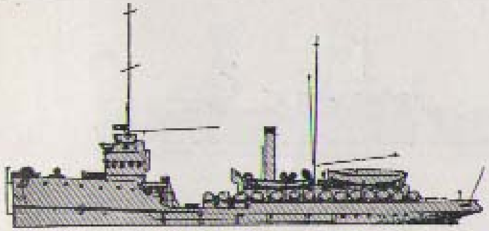
Brummer.

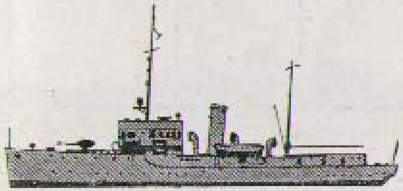


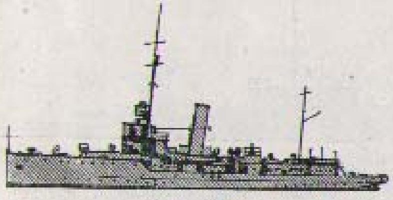
Bremse.

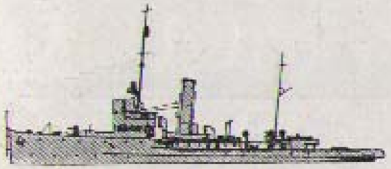


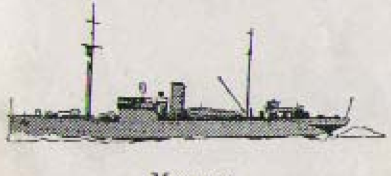
F 1–10.

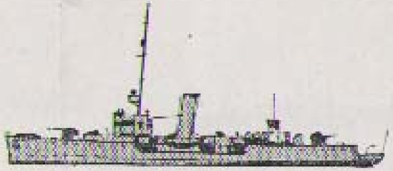

M.T. 1, 2.
(Now have AA. gun on fo'c'sle.)

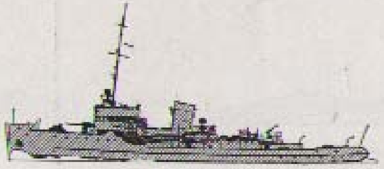

Elbe *Class.*

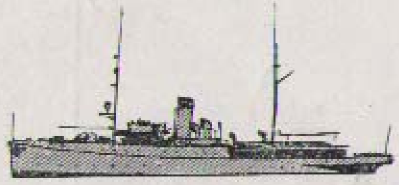

Hela *Type.*
(Also Frauenlob with taller mainmast, and Zieten, smaller funnel.)

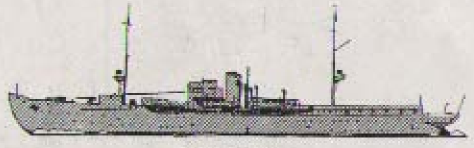

"M" *Class.*
(Jagd, Pelikan and others, no mainmast.)

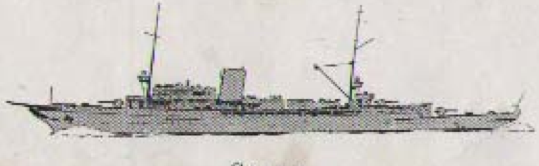

Meteor.

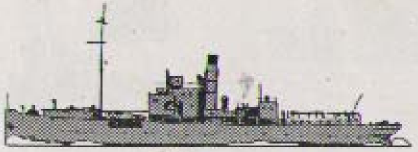

Fuchs.


Drache.


Nordsee.


Weichsel.


Grille.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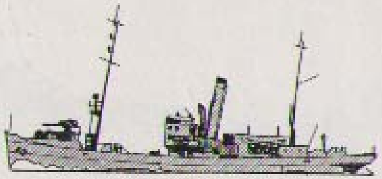
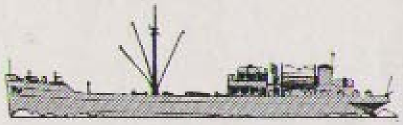

Trawlers
(vary in details.)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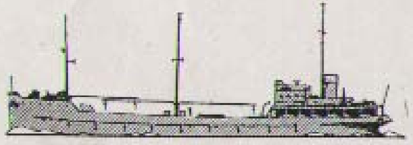
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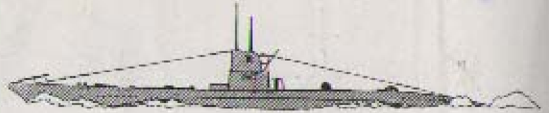
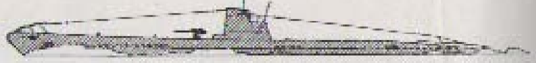
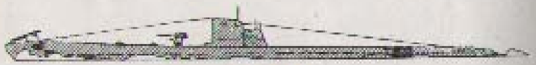

U 1 *Class.*
(Small type.)


U 27 *Class.*
(Medium type.)


U 25, 26.
(Largest type.)

## NEW CONSTRUCTION.

A battleship of 35,000 tons was laid down by Blohm & Voss at Hamburg in 1936, under that year's programme, and a second ship of the same type was begun at Wilhelmshaven early in 1937. A third is to be laid down at Kiel at the end of that year. Two former ships known officially as F. and G.

Length: 792⅓ feet. Beam: 118 feet. Draught: 26 feet (*mean*). + Adm Tirpitz 12.11.44 Тромсе!
+ Fürst Bismarck 27.5.41 Атлант. В.

Guns:

**8**—15 inch.
**12**—5·9 inch.

+ **SCHARNHORST** (October 3, 1936). Баренцево море
+ **GNEISENAU** (December 8, 1936). Гдыня

Standard displacement: 26,000 tons. Complement:
Length (*w.l.*) 741½ feet. Beam, 98½ feet. Draught, 24⅔ feet (*mean*).

Guns:

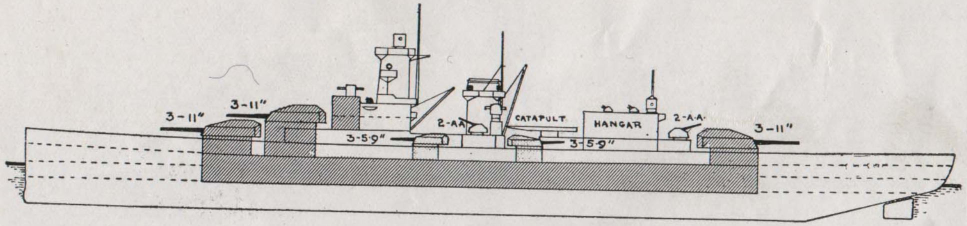
**9**—11 inch.
**12**—5·9 inch.
**12**—4·1 inch AA.
Various smaller.

Aircraft: 2

(No torpedo tubes.)

Armour: (Unofficial)

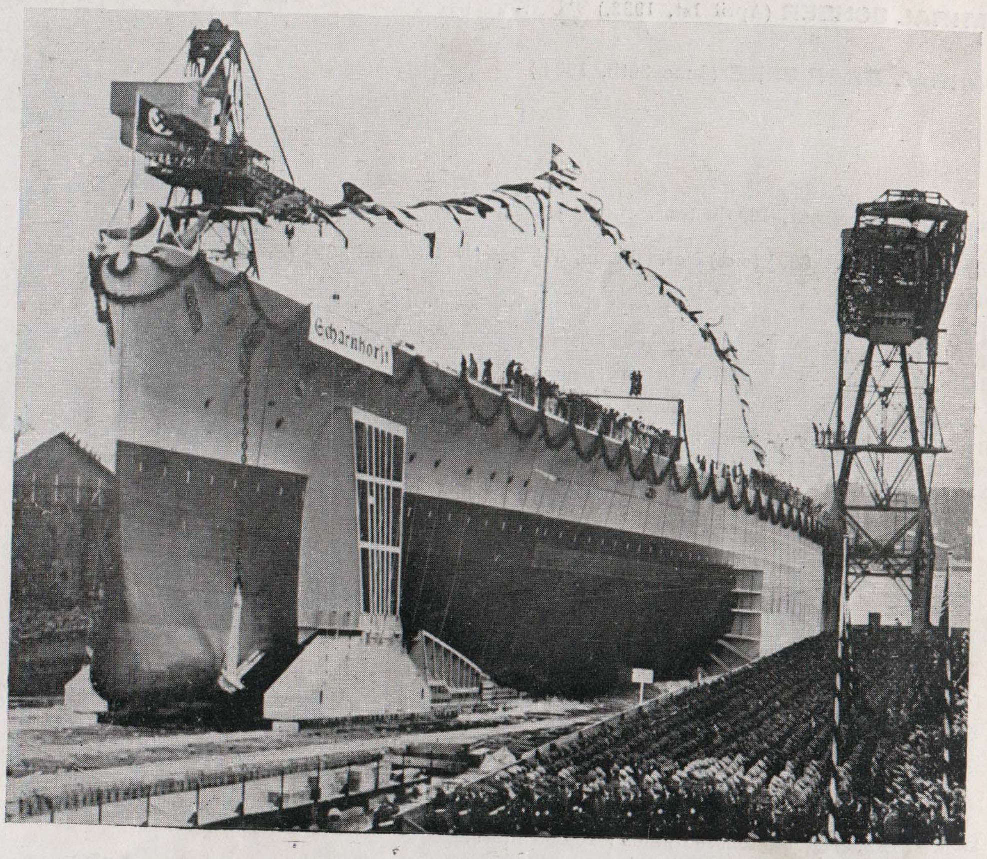
8″—10″ Belt.
12″ Turrets.
6″ Decks.



Machinery: Geared turbines, combined with Diesels for cruising speeds. High pressure watertube boilers. Speed about 30 kts.

*General Notes.*—It was originally supposed that these two ships would be of the *Deutschland* class. Actually they are of a new and much more formidable design, of which few official details have been released. Names commemorate those of 2 cruisers sunk at the Battle of the Falklands, Dec. 8, 1914.

*Gunnery Notes.*—11 inch calibre was accepted for these ships in order to allow a greater proportion of weight to protection.



| *Name.* | *Builder.* | *Machinery.* | *Laid down.* | *Completed.* |
|---|---|---|---|---|
| *Scharnhorst* | Wilhelmshaven | | | To be Jan., 1938. |
| *Gneisenau* | Deutsche Werke | | | To be April, 1938 |

## GERMANY—Armoured Ships (*Panzerschiffe*).

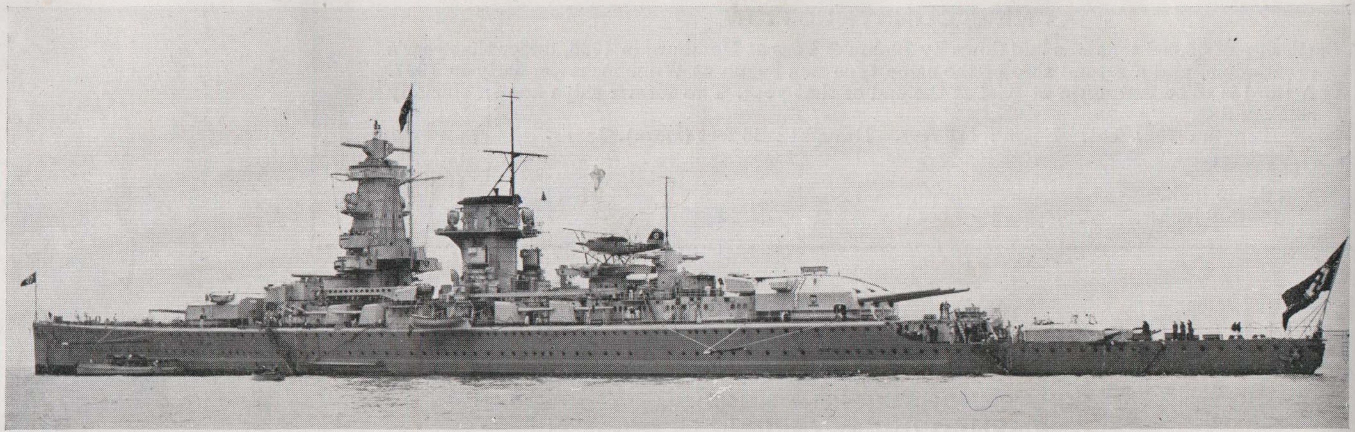
### (Deutschland class—3 ships.)

Lutzow

+ **DEUTSCHLAND** (May 19th, 1931.) Свинемюнде

+ **ADMIRAL SCHEER** (April 1st, 1933.) Киль

+ **ADMIRAL GRAF SPEE** (June 30th, 1934.) Ла Плата



SPEE. 1937, *Fighting Ships.*

(*Additional photographs and plan will be found on following page*)

Standard displacement, 10,000 tons. Complement, 926.

Length, 593 (*w.l.*). 609¼ (*o.a.*) feet. Beam, 67½ feet (*Deutschland*), 69½ (*Scheer*), 70⅘ (*Spee*). Draught, 21⅔.

Guns :
- 6—11 inch.
- 8—5·9 inch.
- 6—4·1 inch AA.
- 8—3 pdr. AA.
- 10—M.G.

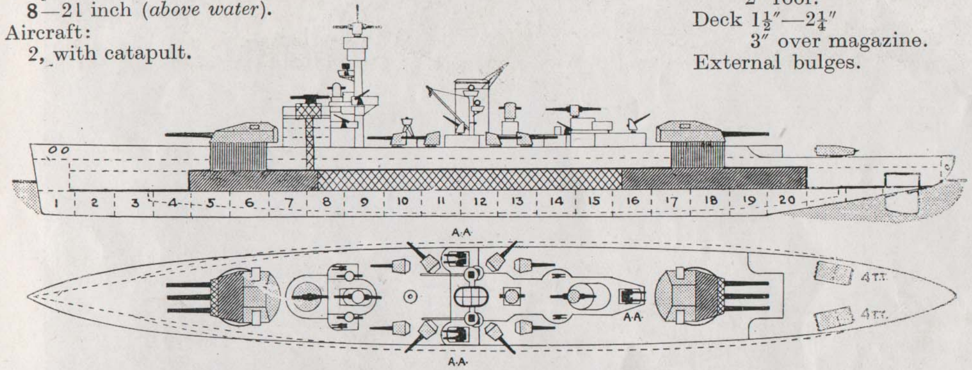
Torpedo tubes :
- 8—21 inch (*above water*).

Aircraft :
- 2, with catapult.

*Note to Plan.*—This relates only to *Deutschland*. Later ships vary as plan on following page.

Mainmast stepped against after side of funnel; catapult is forward of funnel.

Armour : (In *Scheer*, average thickness of armour is slightly less, but it is spread over a larger area.)
- Belt—4″ with 1½″ internally.
- Turrets : 4″ bases.
  - 7″ faces.
  - 2—3″ sides.
- C.T. 5″
  - 2″ roof.
- Deck 1½″—2¼″
  - 3″ over magazine.
- External bulges.

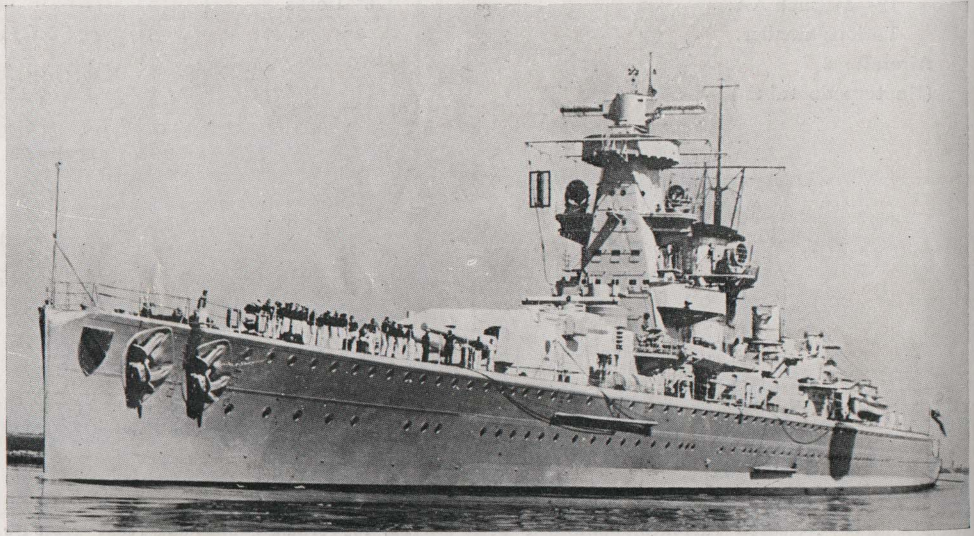


Machinery : 8 sets M.A.N. Diesels, of 6,750 H.P. each. 2 shafts. Total H.P. : 54,000 = 26 kts. Fuel : 1,200 tons. Radius : 10,000 miles.

*General Notes.*—These are the first ships of such size to have electrically welded hulls and to be propelled by Diesel engines. By these means a saving in weight of 550 tons is said to be effected. Are officially rated as " Armoured Ships " (*Panzerschiffe*), and popularly referred to as " Pocket Battleships." Actually, they are equivalent to armoured cruisers of an exceptionally powerful type. Cost £3,750,000 = £375 per ton.

*Gunnery Notes.*—The 11 inch guns are a new Krupp model, firing a 670 lb. projectile, with a range of 30,000 yards and an elevation of 60°.

*Machinery Note.*—8 sets compressorless double-acting two-stroke M.A.N. Diesels each of 6,750 B.H.P. at 450 r.p.m. Each group of four drives a single propeller shaft through Vulcan gear, which reduces speed to 250 r.p.m. Net weight of engines about 17·6 lb. per b.h.p. excluding Vulcan drive, shafting, propeller and air reservoirs. Total weight of whole plant about 48·5 lb. per b.h.p. Electrically welded plate framing employed for the first time. It is stated that Diesels have operated satisfactorily in service, without undue vibration or noise from exhaust.



AD. SCHEER. 1935.

| *Name.* | *Builder.* | *Laid down.* | *Completed.* |
|---|---|---|---|
| *Deutschland* | Deutsche Werke | 5/ 2/29 | 4/33 |
| *Ad. Scheer* | Wilhelmshaven | 25/ 6/31 | 12/11/34 |
| *Ad. Graf Spee* | Wilhelmshaven | /10/32 | 6/1/36 |

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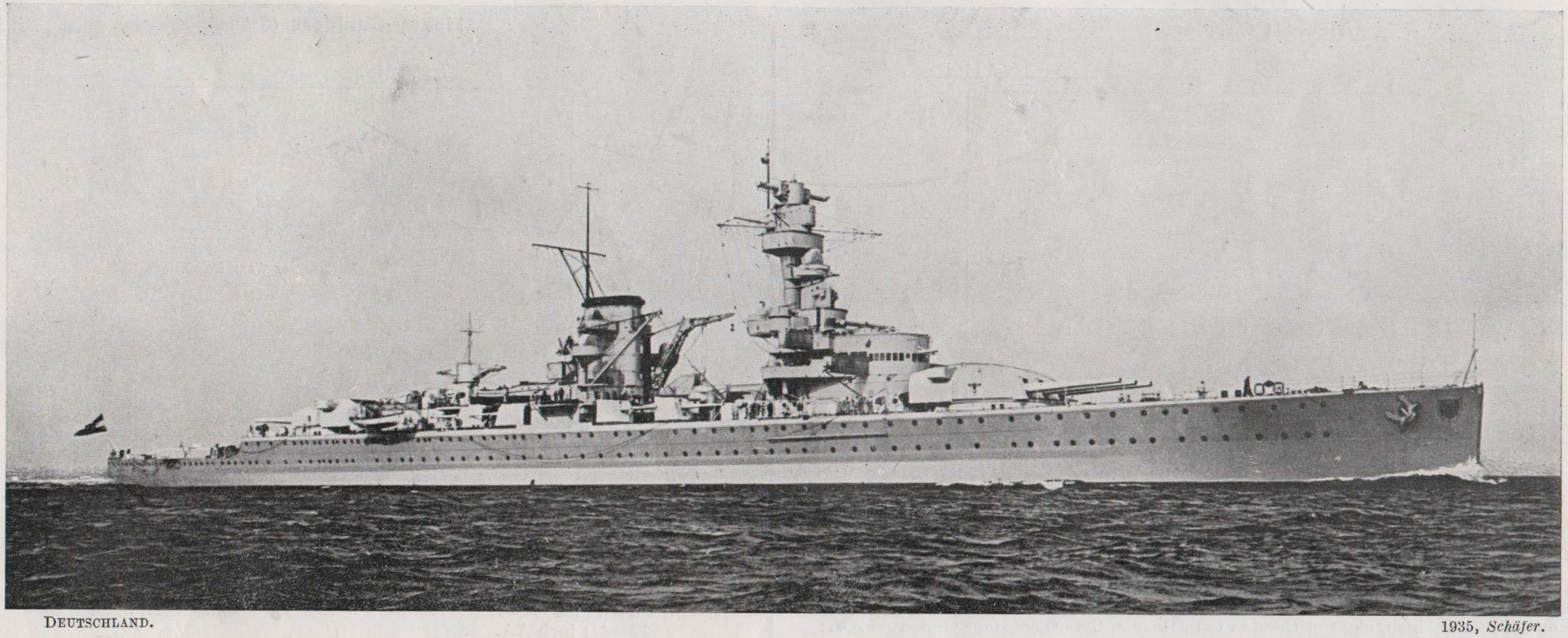
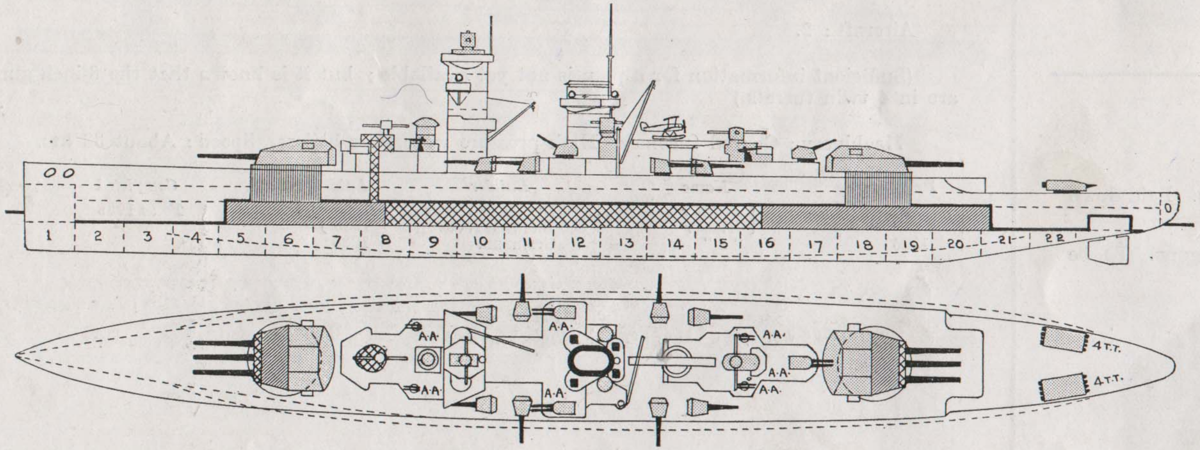


DEUTSCHLAND. 1935, *Schäfer*.



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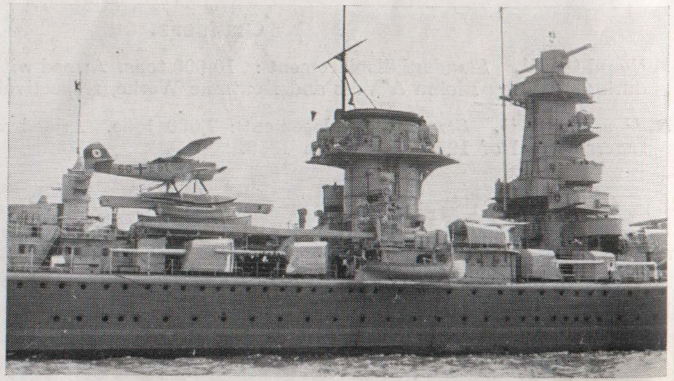
4 T.T.
4 T.T.

Plan of Admiral Scheer and Admiral Graf Spee.

*Note*—Following alterations in appearance were effected in 1937. 2 new cranes have replaced the former one; a small deckhouse has been added at base of catapult; derrick posts have been cut down and S.L. rearranged on a platform around upper part of funnel.



SPEE. 1937, *W. A. Fuller, Esq.*

## Aircraft Carriers.

Craf Zepelin [illegible] [illegible]
Peter Strasser -"- ?

*Building.*

**"A"** and **"B".** Both laid down in 1936, under the Programme for that year. Standard displacement: 19,250 tons.

Length: 820¼ feet. Beam: 88½ feet. Draught: 18¼ feet (*mean*).

No other details have been released. But it is believed that each ship will be capable of accommodating 50 aircraft, and possess a speed of over 30 knots. Unofficial reports credit them with an armament of 14—5·9 inch, eight of them in twin turrets, the others singly mounted AA.; extensive protection; and only 25 aircraft each.

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## Cruisers.

**"K"** and **"L".** *Standard* displacement: 10,000 tons. Armed with 5·9 inch guns. Laid down during 1937, by Blohm & Voss and Deutsche Werke, respectively.

**"M"** and **"N".** *Standard* displacement: 7,000 tons. Armed with 5·9 inch guns. To be begun at end of 1937 or early in 1938.

Dresden
Lübeck } [illegible] [illegible]
Rostock

## Heavy Cruisers (*Schwere Kreuzer*).

*Building or Completing.*

[illegible] (Kiel

+ **BLÜCHER** (June 8, 1937), **ADMIRAL HIPPER** (Feb. 6, 1937), and **"I"** (*building*).
*Standard* displacement: 10,000 tons. Complement:
4.000
Dimensions: 639¾ × 69¾ × 15½ feet (first 2 ships); third ship, 654½ × 71 × 15 feet.

Guns:
- 8—8 inch
- 12—4·1 inch AA.
- Several smaller.

Armour:
- 5" Vert. Side.

Aircraft: 2.

(Sufficient information for a plan is not yet available; but it is known that the 8-inch guns are in 4 twin turrets.)

Machinery: Geared turbines. High pressure watertube boilers. Speed: About 33 kts.

| *Programme* | *Name* | *Builder* | *Laid down* | *Completed* |
|---|---|---|---|---|
| 1935 | *Blücher* | Deutsche Werke | 1935 | *To be 1938* |
| | *Hipper* | Blohm & Voss | 1935 | |
| 1936 | *"I"* | Germania | 1936 | |

Prinz Eugen – [illegible] [illegible]
Seydlitz ?
Lützow ?

## Light Cruisers (*Leichte Kreuzer*).

**NÜRNBERG** (Deutsche Werke, Kiel, Dec. 8, 1934.)

Standard Displacement: 6,000 tons. Complement: 656.

Dimensions: 557¾ (*p.p.*), 603 (*o.a.*) × 54 × 14¼ feet (*mean* draught).

Guns:
- 9—5·9 inch, 50 cal.
- 8—3·5 inch AA.
- 8—3 pdr. AA.
- 4 M.G.

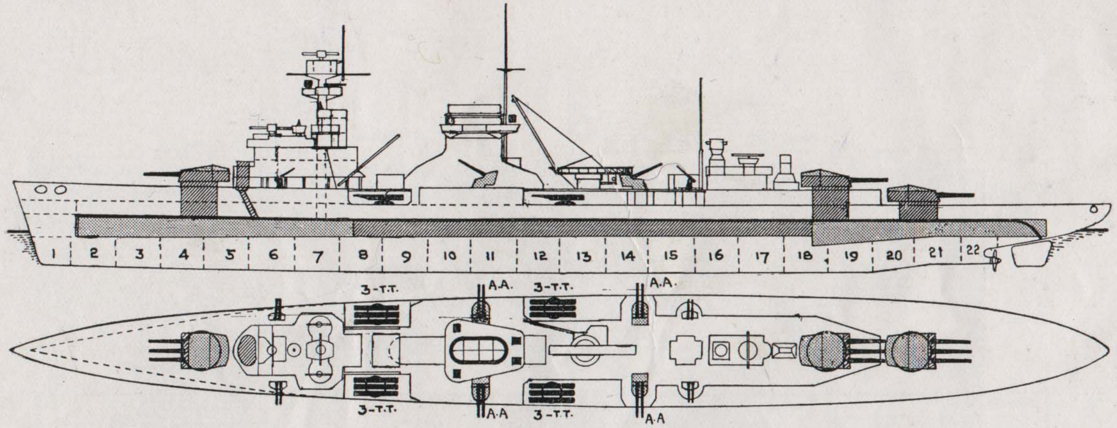
Torpedo Tubes:
- 12—21 inch, *above water* (tripled).

Aircraft:
- 2, with catapult.

Armour:
- 3″—4″ Vert. Side.
- 2″ Gunhouses.
- 3″ C.T.

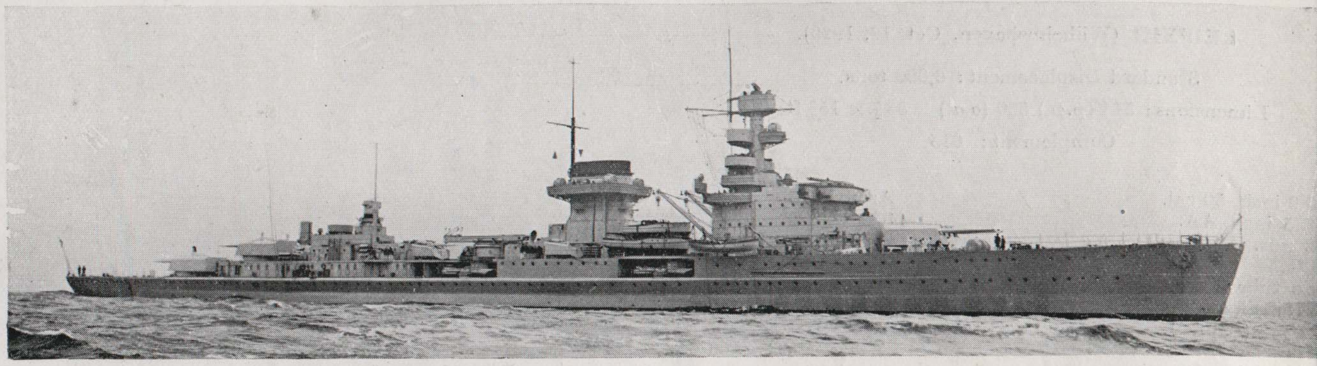
Side armour is more extensive than in *Leipzig*, both horizontally and vertically, but average thickness is slightly less.

Адмирал Макаров.

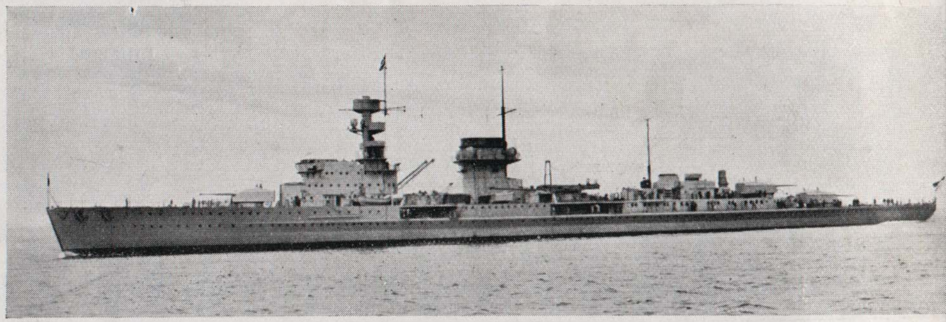


Machinery: Geared turbines. S.H.P.: 60,000, with Diesels of 12,000 B.H.P. for cruising. Speed: 32 kts. 3 shafts. Boilers: 6 Marine type.

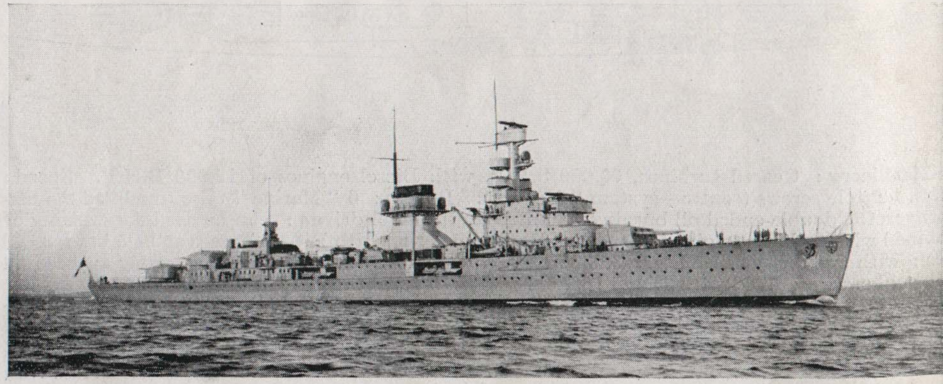
Other details understood to be generally similar to *Leipzig*, of which she is a slightly improved edition. Laid down early in 1934 and commissioned at beginning of November, 1935.



NÜRNBERG. 1936, *Renard.*



NÜRNBERG. 1935.



NÜRNBERG. 1935, *Schäfer.*

**LEIPZIG** (Wilhelmshaven, Oct. 18, 1929). поврежден Вильгельмсхаф

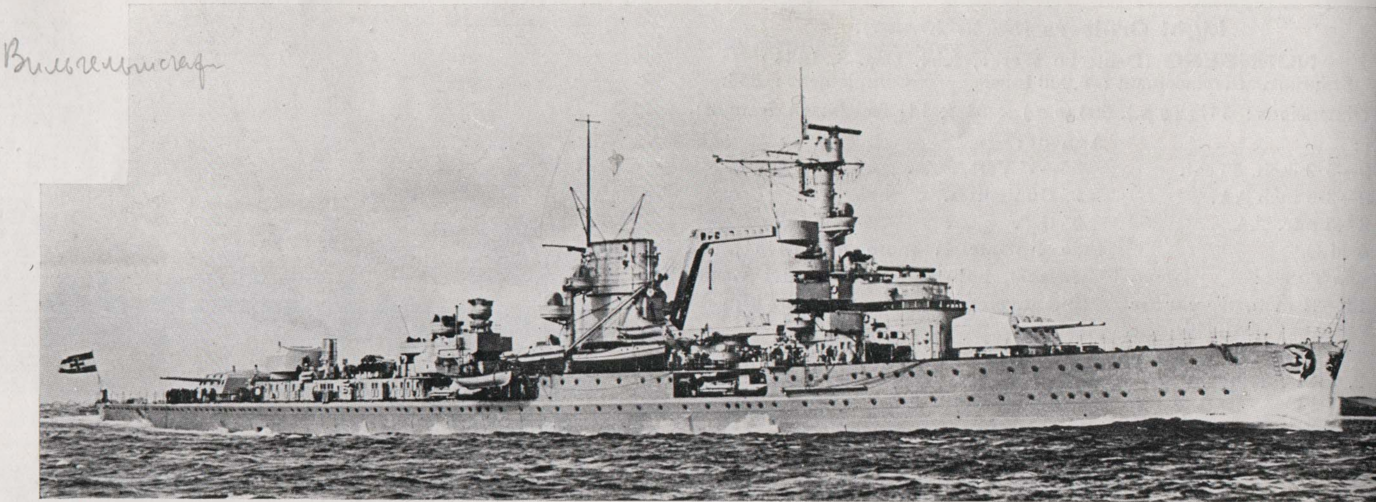
Standard Displacement: 6,000 tons.

Dimensions: 544 (*p.p.*) 580 (*o.a.*) × 53½ × 15¾ ft.

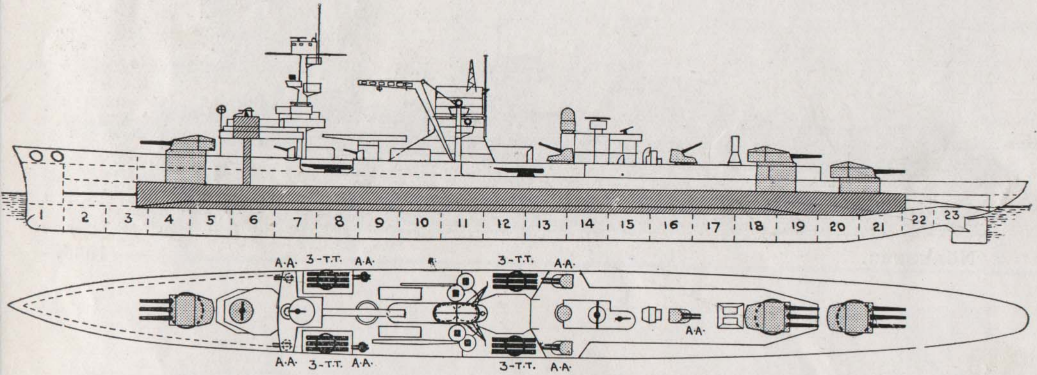
Complement: 615.

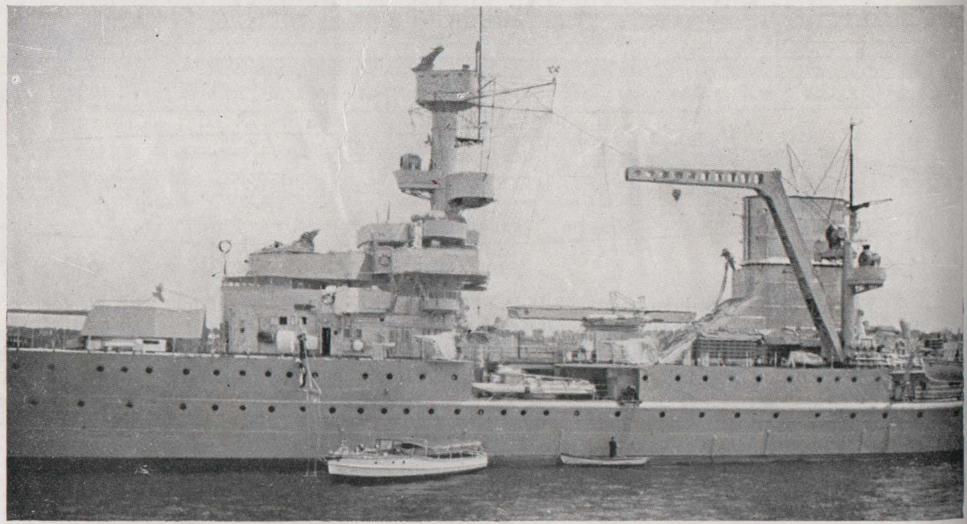
Guns:
**9**—5·9 inch, 50 cal.
**6**—3·5 inch, AA.
**8**—3 pdr. AA.
4 M.G.
Torpedo tubes:
**12**—21 inch, *above water* (tripled).
Aircraft:
2, with catapult.

Armour:
3″—4″ Vert. Side.
2″ Gun houses.
2″ C.T.



LEIPZIG. 1935, *Schäfer.*





1935, *courtesy "Taschenbuch der Kriegsflotten"*

Machinery: Geared turbines, 60,000 S.H.P. with Diesel engines of 12,000 B.H.P. Speed: 32 kts. Triple screws (centre—system "Helix"). Boilers: 6 "Marine" type (modified Schulz-Thornycroft), double-ended oil burning. Centre shaft Diesel driven: can be used for cruising or combined with turbines to give full speed. Radius of action with Diesel engines at 14·5 kts: 3,800 miles; with turbines at 14·5 kts.: 3,200 miles = 7,000 miles. Radius could be greatly augmented if all bunkers were filled with Diesel fuel only. Fuel: 1,200 tons + 378 tons Diesel fuel.

*Machinery Notes.*—Variable pitch propeller on inner shaft, which "feathers" when Turbines only are used. Under Diesels alone, wing shafts are spun by 500 b.h.p. motors through spur gearing from centre shaft, thus obviating loss of 3,000 b.h.p. if they were allowed to turn idly. Plant is four 7-cyl. M.A.N. two-stroke double-acting compressorless Diesels. Engine speed = 600 r.p.m. Four engines to each shaft, through Vulcan hyd. clutches and reducing gear, giving shaft speed of 400 r.p.m. Weight of machinery, including scavenging blower and its driving engine, and auxiliaries to propelling plant = 12·1 lb. per b.h.p. (5·5 kg.). Turbines are Germania type.

*General Notes.*—Laid down at Wilhelmshaven April 18th, 1928. Completed in 1931. Modified *Königsberg* design with after turrets in centre-line and uptakes trunked into one funnel: fitted with bulges below water-line which are to be filled with oil fuel and are designed to improve speed lines rather than to act as a means of protection.

(Königsberg Class—3 Ships.)

+ **KÖNIGSBERG** (March 26th, 1927), + **KARLSRUHE** (August 20th, 1927), **KÖLN** (May 23rd, 1928).

Displacement, 6000 tons. Complement, 571.

Length, 554 feet 5½ inches (*w.l.*), 570 feet (*o.a.*),

Beam, 49 feet 10½ inches.

Designed draught, 17 feet 9 inches.

Guns:
- **9**—5·9 inch, 50 cal.
- **6**—3·5 inch AA.
- **8**—3 pdr. AA.
- 4 M.G.

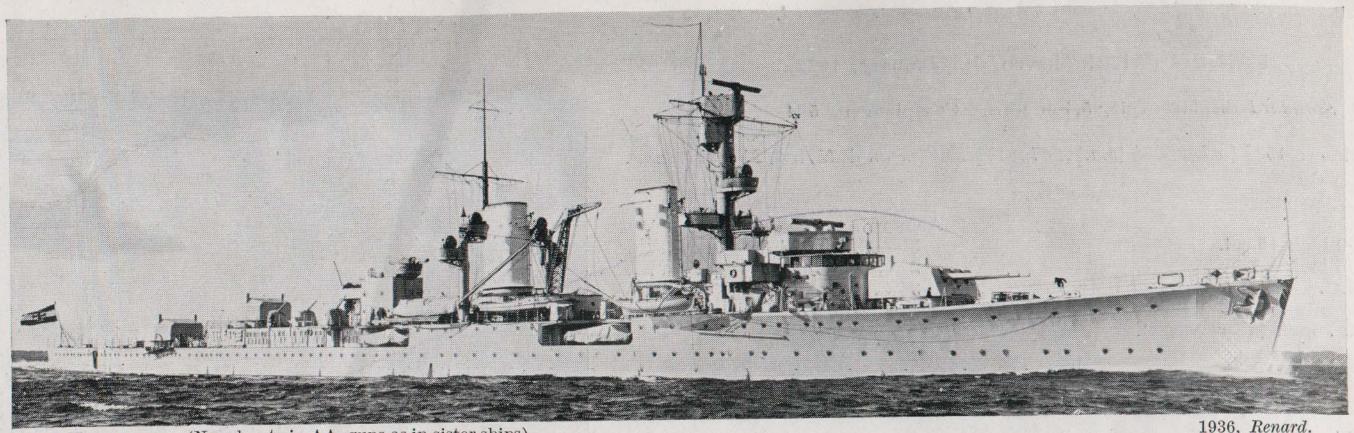
Armour:
- 3″—4″ Vert. Side..........
- 2″ Gun Houses ..........
- 3″ C.T.

Torpedo tubes:
**12**—21 inch, *above water*, tripled.

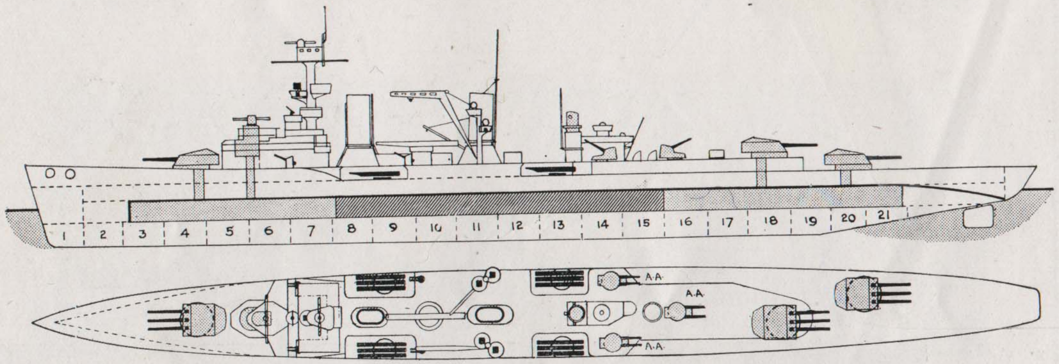
Aircraft: 2, with catapult.

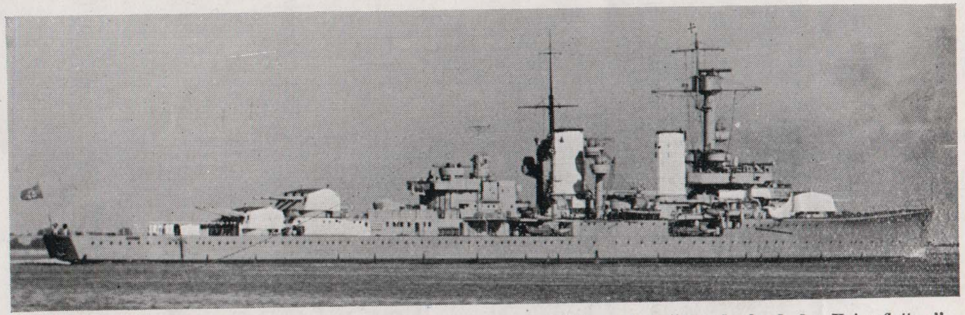
1 } у [illegible]
2 }

3 [illegible] [illegible]


Karlsruhe. (Now has twin AA. guns as in sister ships). 1936, *Renard.*

Machinery: Geared turbines, with 10 cyl. 4-stroke Diesel engines for cruising purposes. Boilers: Schulz-Thornycroft. Designed H.P.: 65,000 = 32 kts. Fuel: 1,200 tons oil + 300 tons Diesel fuel. Radius: at 14 kts., 5,500 miles; at 10 kts., 10,000.




Königsberg. 1936, *courtesy "Taschenbuch der Kriegsflotten."*

| *Name* | *Building Yard* | *Begun* | *Completed* | *Trials* | *Boilers* | *Best recent speed* |
|---|---|---|---|---|---|---|
| *Königsberg* | Wilhelmshaven | 12/4/26 | Spring, 1929 | | 6 Schulz-Thornycroft | 32·2 |
| *Karlsruhe* | Deutsche Werke, Kiel | 27/7/26 | Autumn, 1929 | | | |
| *Köln* | Wilhelmshaven | 7/8/26 | | | | |

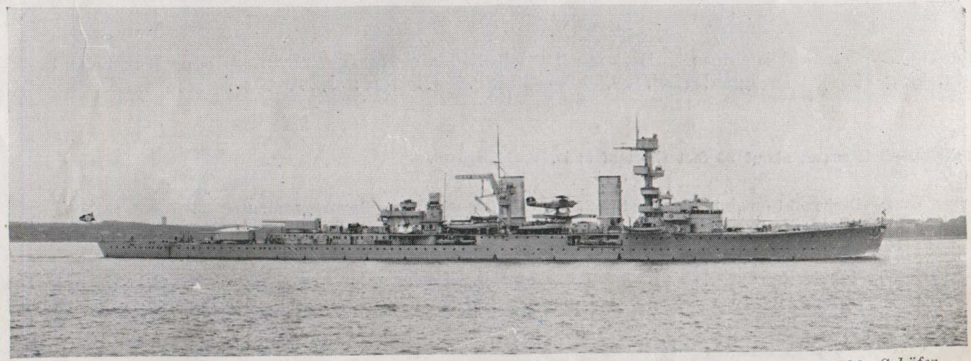
*General Notes.*—Every possible expedient for saving weight has been employed in these ships. A very high grade of steel was selected, and electric welding has taken the place of riveting.

*Königsberg* is a gunnery training ship.

*Gunnery Notes.*—3—5·9 inch can fire simultaneously at rate of 6 salvoes a minute, and range to 20,000 yards. Disposition of after turrets is governed by arrangement of ammunition handling rooms. The 3·5 inch guns are paired in *Köln.*

*Engineering Notes.*—Designed horse-power of turbines is 63,000, and of Diesels, 2,000.

*Königsberg* originally had Schichau Diesels, but these have been replaced by Germania type.


Köln. 1936, *Schäfer.*

**EMDEN** (Wilhelmshaven, 7th January, 1925). [illegible] Киль

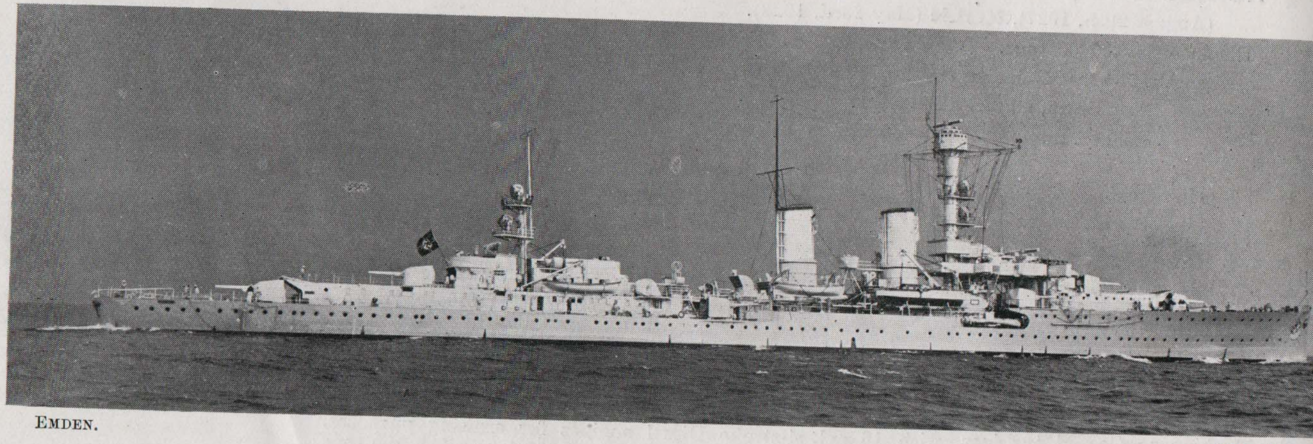
*Standard* displacement, 5,400 tons. Complement, 534.

Dimensions : $493\frac{3}{4}$ (*w.l.*), $508\frac{1}{2}$ (*o.a.*) × 47 × $17\frac{1}{2}$ feet (*mean* draught), 21 feet (*max.*).

Guns :
- 8—5·9 inch 45 cal.
- 3—3·5 inch AA.
- 4—M.G.

Torpedo tubes :
- 4—19·7 inch (*above water*).

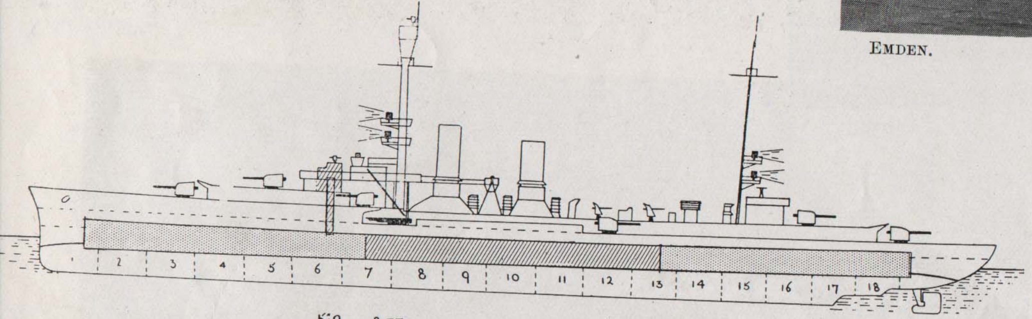
Armour :
- 3″—4″ Vert. Side ........
- 2″ Gun Houses ........
- 3″ C.T.

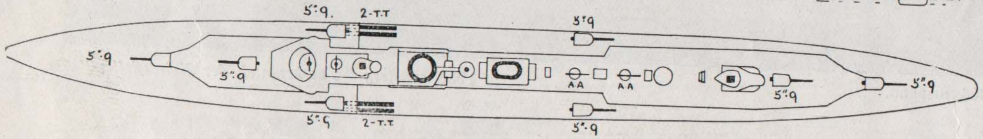


EMDEN.

1937, Renar

*Note to Plan :—*
Now rigged as photos.



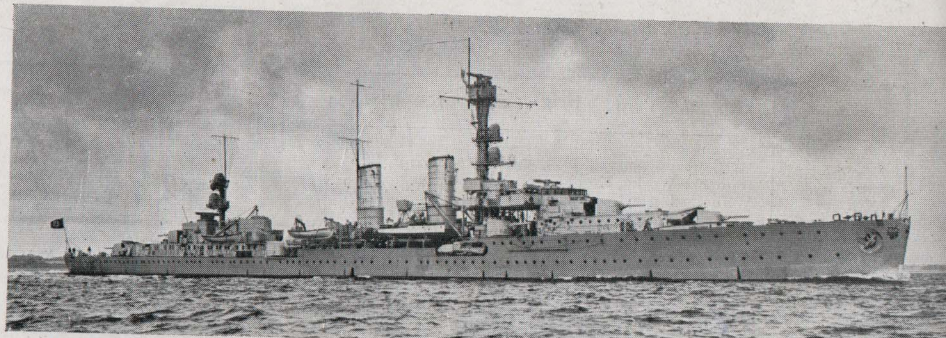


Machinery : Geared turbines. Boilers : 10 Schulz-Thornycroft "Marine" type (Converted to oil-burning 1934). Designed H.P. 46,500 = 29 kts. Oil fuel: 1,260 tons.

*Armour Notes.*—Belt ceases about 33 feet short of ends.

*Engineering Notes.*—Designed to maintain a speed of 27·5 kts. in fair weather. Revs. per minute : 2435 H.P. turbines. 1568 L.P. turbines, geared down to 295 R.P.M. on propellers. On trials, designed speed was slightly exceeded with 46,500 H.P.

*General Notes.*—The tubular foremast is about 5 feet in diameter. Masting modified and second funnel heightened, 1926–27. *Emden* was designed for foreign service, particular attention being paid to accommodation. Laid down in December, 1921, commissioned 15th October, 1925. Now used as sea-going training ship for cadets.



EMDEN.

1937, *Schäfer.*

тип Maas и Karl Galster } осталось 1 шт

тип Elbing 1200 4-105
34 уз 6-533 осталось 5 шт

Тип Narvik 2600 5-150
38 уз 8-533
осталось 10 шт 8-37
4-20

# 10 + *12* (bldg.) Destroyers.

New Construction (1936 Programme).

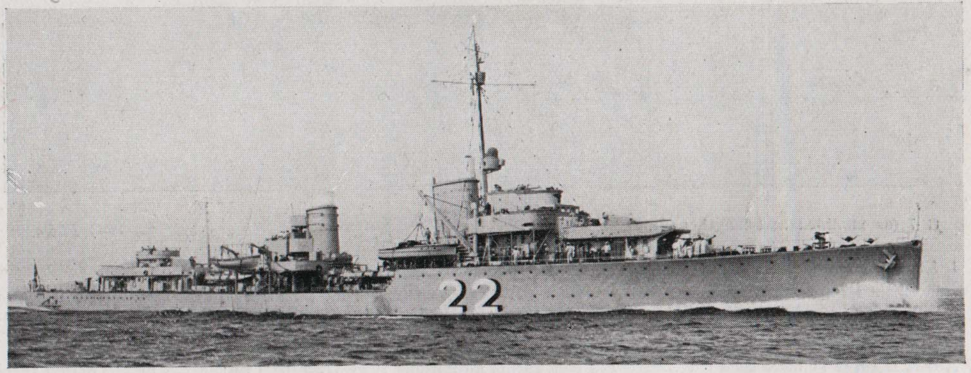
6 *Oceangoing* type : Z. 17—22. Laid down 1936. Standard displacement : 1,811 tons. Dimensions : 385½ × 38⅓ × 9½ feet. Believed to be armed with **6** or **8**—5 inch guns and **8** tubes. Speed : 36 kts.

## 16 Maass Class.

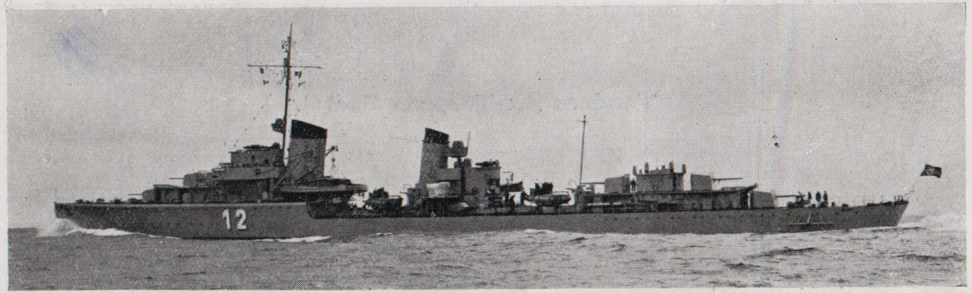
4

1-ам.

8 Бел.



G. Thiele. 1937, *Renard.*



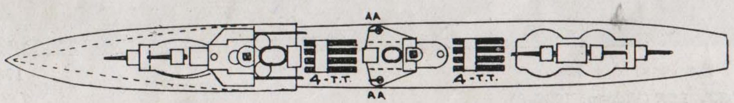
M. Schultz. 1937, *Schafer.*

4 *Deutsche Werke :* **Leberecht Maass, Georg Thiele, Max Schultz, Richard Beitzen** (all 1935).

5 *Germania:* **Paul Jacobi, Theodor Riedel, Hermann Schoemann, Bruno Heinemann, Wolfgang Zenker** (All 1936).

4 *Deschimag :* **Hans Lody, Bernd Von Arnim, Erich Giese** (all 1936), **Erich Koellner** (1937).

3 *Blohm & Voss :* **Friedrich Ihn** (1935), **Erich Steinbrinck** (1936), **Friedrich Eckoldt** (1937).



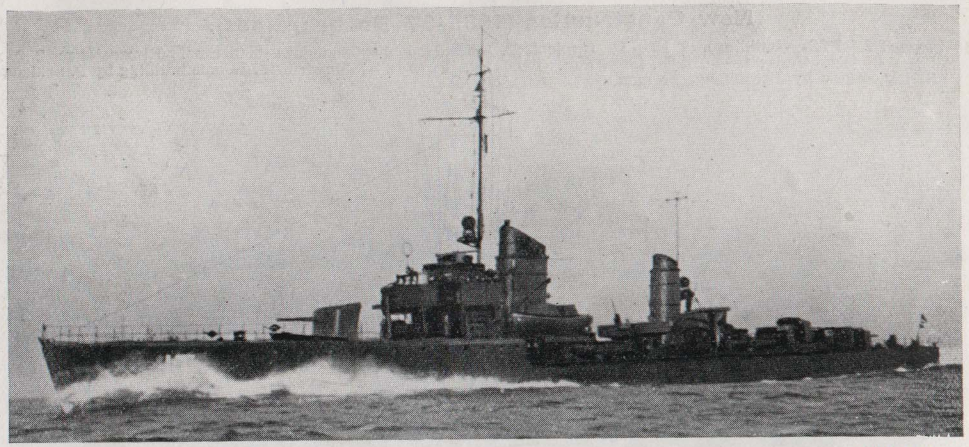
Standard Displacement : 1,625 tons. Complement : 283. Dimensions : 374 × 37 × 9⅓ feet.
Guns : **5**—5 inch, **4**—37 mm. AA. Tubes : **8**—21 inch, quadrupled.
Machinery : Geared turbines. S.H.P. : 40,000 = 36 kts. High pressure watertube boilers.
*Note.*—Notable feature of these torpedo craft is the first appearance in German flotillas of quadruple torpedo tubes. First of class were laid down in autumn of 1934, latest in autumn of 1935. All authorised under 1934 Programme. Pendant Numbers, as so far allotted : *L. Maass*, fitted as leader, has none. *R. Beitzen*, 11 ; *M. Schultz*, 12 ; *G. Thiele*, 13 ; *P. Jacobi*, 21 ; *T. Riedel*, 22 ; *H. Schoemann*, 23.

5 - эм. Desaix
6 - эм Kléber

эм Z-25 Hoche
эм Z-31 Marceau } 4-150
эм Z-39 ? } 5-150

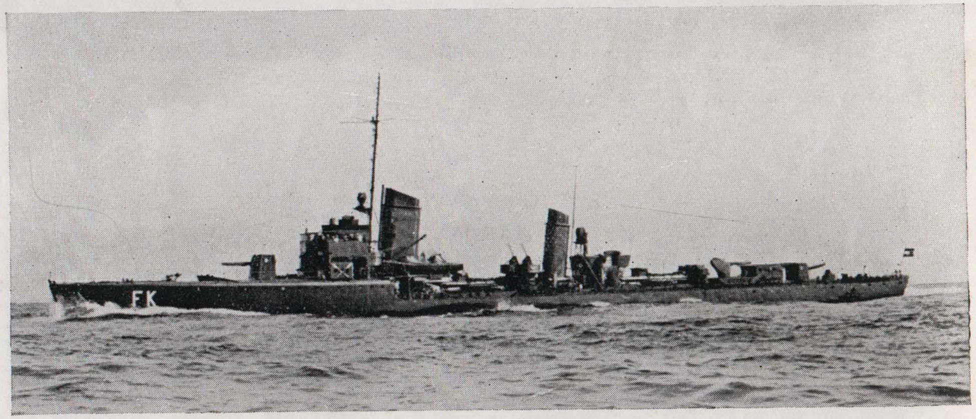
Тип Narwik

## Torpedo Boats.



Jaguar. 1933 *Photo.*

6 *Wilhelmshaven Yard :* **Iltis, Wolf** (both Oct. 12th. 1927), **Jaguar, Leopard, Luchs, Tiger** (all March, 1928). Laid down 1927. Standard Displacement : 800 tons (1,000 tons deep load). Dimensions : 292 (*p.p.*), 304 (*o.a.*) × 28 × 9 feet. Guns : **3**—5 inch, 50 cal. in *Leopard, Luchs* ; **3**—4·1 inch in others ; and in all, **2**—1 pdr. AA. T.T. : **6**—21 inch (tripled parallel). Designed S.H.P. : 25,000 = 34 kts. Geared turbines and Schulz-Thornycroft boilers. Oil fuel : 330 tons. Complement : 123. Are of same general type as *Möwe* class, with minor improvements. *Jaguar* employed as Gunnery School Tender.

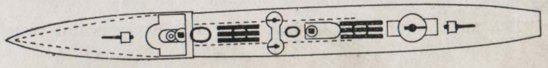


Falke. 1934 *Photo.*

6 *Wilhelmshaven Yard :* **Möwe** (March 4th, 1926), **Albatros, Greif, Seeadler** (all three July 15th, 1926), **Falke, Kondor** (both Sept. 22nd, 1926). Standard Displacement : 800 tons (960 tons deep load). Dimensions : 277¾ × 27½ × 9⅙ feet draught. Guns : **3**—4·1 inch, 50 cal., **2**—1 pdr. AA. T.T. : **6**—21 inch (tripled parallel). Geared turbines. 3 Schulz-Thornycroft boilers. Designed S.H.P. 24,000 = 33 kts. (exceeded on trials). Oil fuel : 320 tons. Complement, 121.

*Notes.*—Laid down under 1924 and 1925 Programmes, as *W* 102-107. *Möwe* commissioned October 1st, 1926, others passed into service during 1927, replacing old destroyer *T* 175 and the worn-out torpedo boats of *T* 149 type. Have longitudinal framing and double bottom to hull. Guns said to elevate to 80°. The cost of these vessels is extraordinarily high, working out at about £215 per ton.

Identification letters, painted on bows of Destroyers : At, *Albatros ;* Fk, *Falke ;* Gr, *Greif ;* It, *Iltis ;* Ja, *Jaguar ;* Ko, *Kondor ;* Lp, *Leopard ;* Lu, *Luchs ;* Mö, *Möwe ;* Se, *Seeadler ;* Tg, *Tiger ;* Wl, *Wolf.*



Wolf and Möwe types.
Möwe has pointed stern.

Тип Т-1 и Т-158 от 30уз.

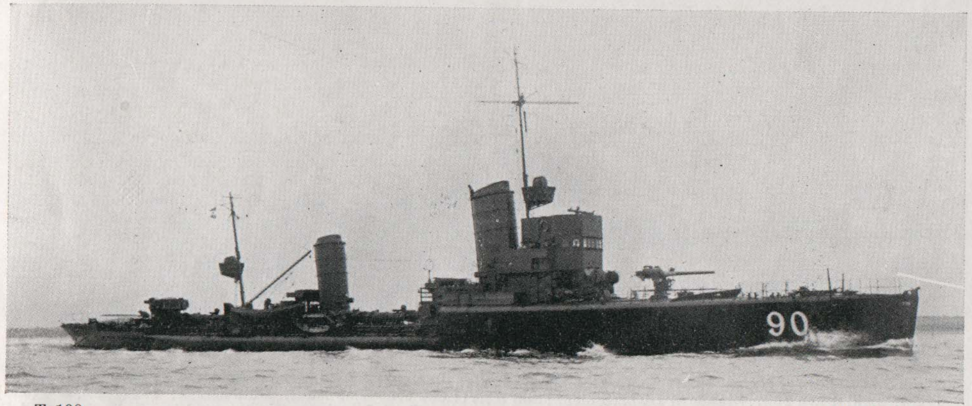
## New Construction (1935-37 Programmes).

6

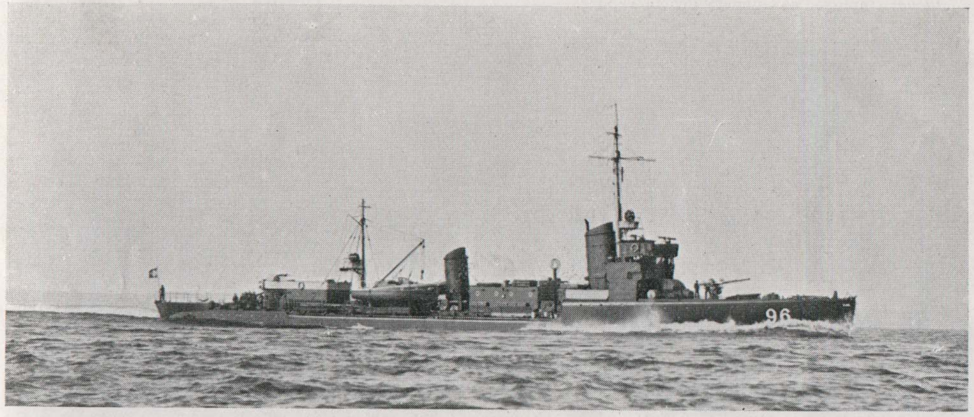
6 сен
4 бел

18 boats: ***T1—T12.*** (building), T 13— 18 (projected). Standard displacement: 600 tons. Dimensions: 267 × 28¼ × 6¼ feet. Guns: **1**—4·1 inch, **1**—37 mm. Tubes: **6**. First 12 laid down 1936. Some building by F. Schichau, Elbing, others by Deschimag, Bremen.

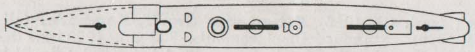
— остано



T 190. 1936, *Schäfer.*



T 196. 1936, *Schäfer.*

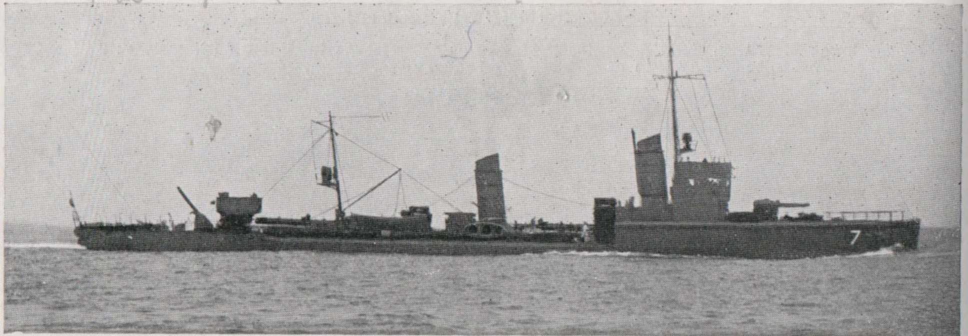


1 *Krupp Germania*, ***T 196*** (ex-*G 196*).
1 *Vulkan*, ***T 190*** (ex-*V 190*).
} launched 1911. Big refit 1927-28.

Displacement: 755 tons. Dimensions: *T* 196, 242¾ × 26¼ × 10¾ feet; *T* 190, 241½ × 26 × 10½ feet. Armament: **1**—4·1 inch, 45 cal., **2** M.G. AA. Torpedo tubes: **2**—19·7 inch (in T 190 only). Machinery: Germania turbines in *T* 196; A.E.G. Vulcan type in *T* 190. Designed H.P.: *T* 196, 18,200 = 32·5 kts.; *T* 190, 18,000 = 30·5 kts. Present best speed, 25 kts. Fuel: *T* 196, 204 tons; *T* 190, 198 tons. 3 Schulz-Thornycroft boilers (oil burning). Complement: 99.

*Notes.*—*T* 196, minesweeping flotilla leader *T* 190, experimental vessel.

Т-23 – фр Alsacien
Т-28 – фр Lorrain } 1200т 34уз 1942г 4-105 8-20
4-37 6-533
Т-4 – фр Baccarat
Т-11 – фр Bir Hakeim
Т-14 – фр Dompaire
Т-19 – фр ?
Т-20 – фр ?
} 850т 36уз 1936-1941г 1-105 1-40 2-37 12-20 6-533



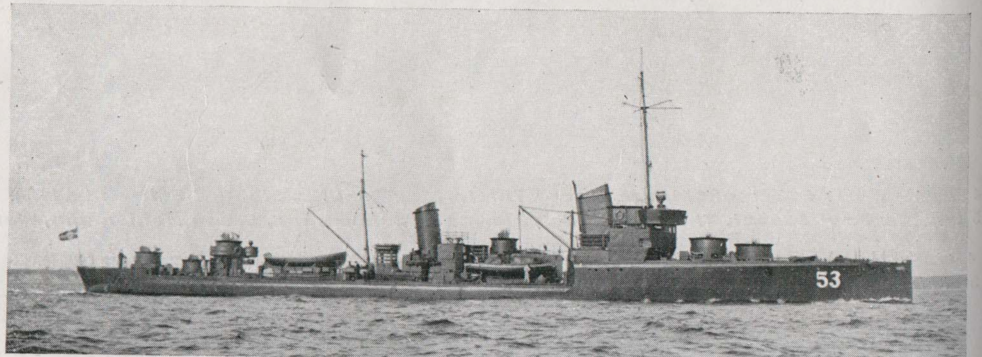
G 7 (as modified and lengthened). 1930 *Photo.*

4 *Krupp-Germania*: ***G 7, G 8*** (both 1911), ***G 10, G 11*** (both 1912).

Displacement: 760 tons. Dimensions: 247¾ × 25 × 10½ feet. Armament: **2**—4·1 inch, 45 cal., **2** M.G. AA. Torpedo tubes: **3**—19·7 inch in *G* 8, *G* 10; **3**—21 inch and **1**—19·7 inch in others. Machinery: 2 sets Satz-Germania turbines. Designed H.P.: 16,000 = 31 kts. (now about 25 kts.) 3 Schulz-Thornycroft boilers (oil burning). Oil fuel: 173 tons. Complement: 100.

*G* 7, *G* 8, *G* 10, *G* 11 have been lengthened 14¾ feet during alterations 1928–31. Single tube abaft mast. Paired tubes between funnels. Used as training units and will be discarded in near future.

## Tenders (ex-Torpedo Boats).



T 153. 1936, *Schäfer.*

***T 153, 156, 157, 158*** (Vulcan, 1907–8).

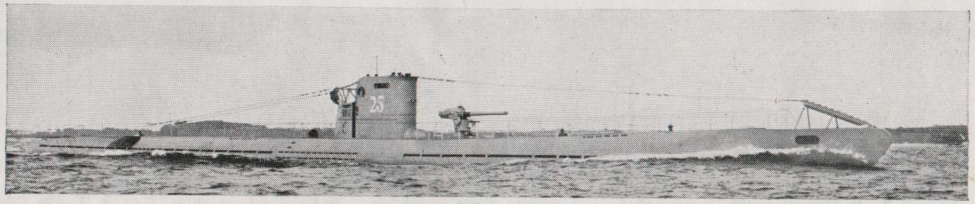
Displacement: 660 tons. Dimensions: 237 × 25½ × 10½ feet (*max.* draught).
Guns: **1** M.G. in all but *T* 153.
Machinery: Triple expansion. Designed H.P.: 10,900 = 30 kts. (now only 22 kts.) Oil: 181 tons. Complement, 87.

*Note.*—Used as Gunnery and Torpedo School Tenders.

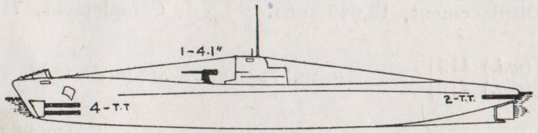
***T 23*** (Schichau, March 29, 1913). 640 tons. Dimensions: 233 × 24⅓ × 9¾ feet. Armament: **2** M.G. Designe S.H.P.: 15,700 = 31 kts. Schichau turbines. Fuel: 71 tons oil. Complement, 92. Used as Submarine Tende

## Oceangoing type.

**U 37—44.** 740 tons. Laid down 1937.



U 25 1936, *Schäfer.*



**U 25** (Feb. 14, 1936), **U 26** (March 14, 1936). Built by Deschimag, Bremen. Standard displacement: 712 tons. Complement, 40. Dimensions: 233 × 20⅓ × 13½ feet. Armament: **1**—4·1 inch 45 cal. gun, **1**—1 pdr. AA.; **6**—21 inch tubes (4 bow, 2 stern). H.P. = 18/8kts.

*Notes.*—Both laid down in 1935, under programme for that year. Commissioned April 6 and May 11, 1936, respectively.

2518 Sm $45_2$ 1602/1827 t 15/16 kn 4-20 6-533

160 Sm Laubie 517/850 t 17/7,5 5-533 8-20 / 1-37 4-20

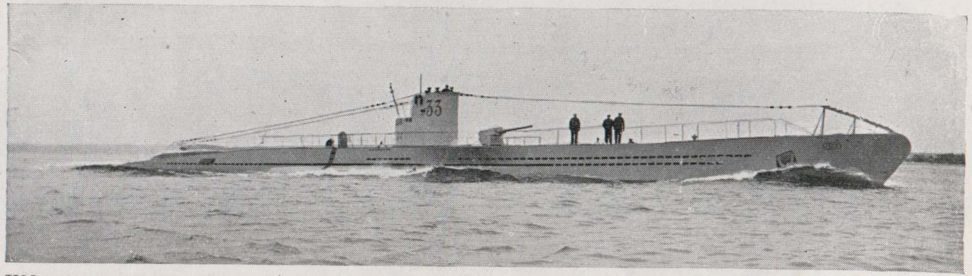
471 Sm Mille

23 Sm Blaison 740/1360 t 20/6,5 8-20 / 1-105 1-37 4-20 6-533

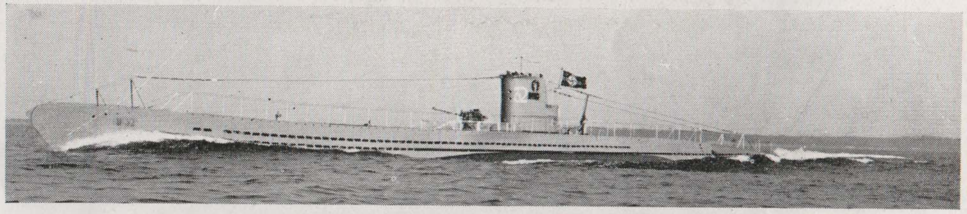
510 Sm Bouan

## Seagoing type.

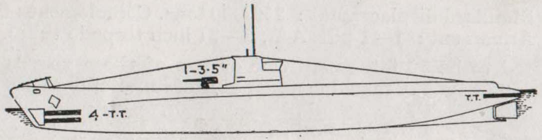
**U 45—55.** 517 tons. First 7 laid down early in 1937, others to be begun by end of year.



U33 1936, *Schäfer.*



U 32. 1937, *Schäfer.*



**U 27** to **U 36** (1936). Standard displacement: 500 tons. Complement, 35. Dimensions: 206¾ × 19 × 13 feet.

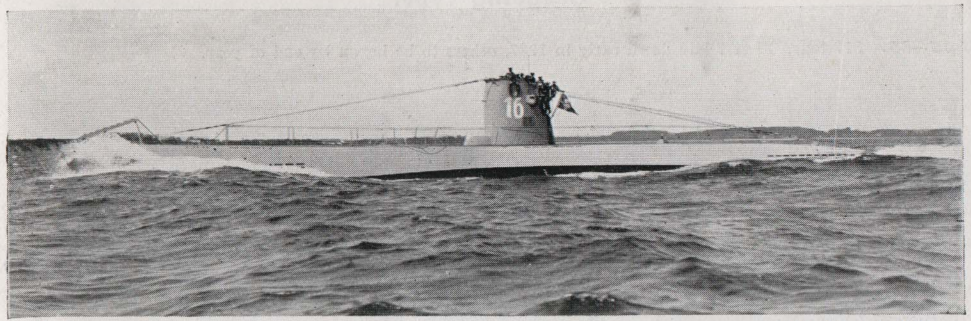
Armament: **1**—3·5 inch, **1**—1 pdr. AA.; **5**—21 inch tubes (4 bow, 1 stern). H.P. = 16/8kts.

*Notes.*—Laid down under 1935 and 1936 Programmes, and completed during 1936–37. *U* 31—36 built by Germania *U* 27—30 by Deschimag.

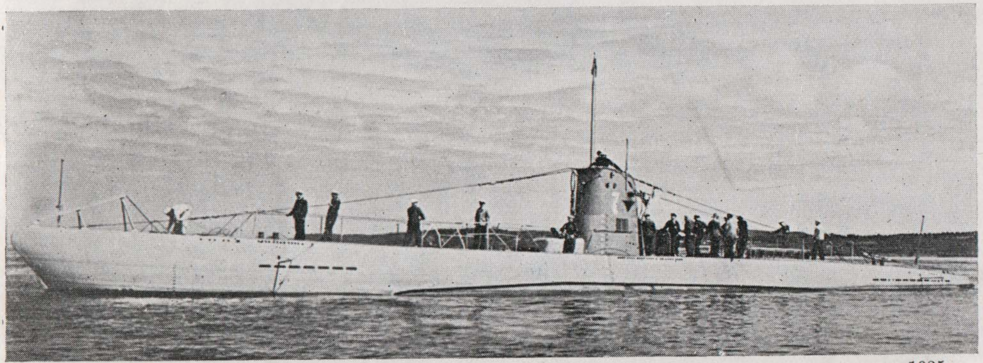
| *Name* | *Launch* | *Name* | *Launch* |
|---|---|---|---|
| *U* 27 | 12/8/36 | *U* 32 | 25/2/37 |
| *U* 28 | 14/7/36 | *U* 33 | 11/3/36 |
| *U* 29 | 29/8/36 | *U* 34 | 17/7/36 |
| *U* 30 | 8/4/36 | *U* 35 | 29/9/36 |
| *U* 31 | 25/9/36 | *U* 36 | 4/11/36 |

## Coastal type.

***U 56—61.*** 250 tons. To be begun towards end of 1937.

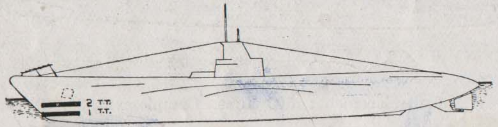


U 16. 1936, *Renard, Kiel.*



U 7. 1935.

**U 1** to **U 24** (1935-36). Standard displacement: 250/330 tons. Complement: 23. Dimensions: 136½ × 13 × 12½ feet. Armament: **1**—1 pdr. AA., **3**—21 inch torpedo tubes. H.P. 700 = 13/7 kts. Diving limit reported to be 50 fathoms. One or two of these vessels reported to be fitted experimentally with new type of machinery, capable of functioning both on and below surface.



*Appearance Note.*—Of those so far reported, identification numbers are painted in *black* on C.T. of U 1—6, and in *white* on C.T. of later boats

| *No.* | *Builder* | *Begun* | *Launch* | *Comp.* |
|---|---|---|---|---|
| U 1 | *Deutsche Werke, Kiel* | 1935 | 15/6/35 | 1935 |
| 2 | | | 1/7/35 | |
| 3 | | | 19/7/35 | |
| 5 | | | 31/7/35 | |
| 4 | | | 14/8/35 | |
| 6 | | | 21/8/35 | |
| 7 | *Germania, Kiel.* | | 29/6/35 | |
| 8 | | | 16/7/35 | |
| 9 | | | 30/7/35 | |
| 10 | | | 13/8/35 | |
| 11 | | | 27/8/35 | |
| 12 | | | 11/9/35 | |

| *No.* | *Builder* | *Begun* | *Launch* | *Comp.* |
|---|---|---|---|---|
| U 13 | *Deutsche Werke* | 1935 | 9/11/35 | 1935 |
| 14 | | | 28/12/35 | 1936 |
| 15 | | | 15/ 2/36 | |
| 16 | | | 28/ 4/36 | |
| 17 | *Germania* | 1935 | 14/11/35 | |
| 18 | | | 7/12/35 | 1936 |
| 19 | | | 21/12/35 | |
| 20 | | | 14/ 1/36 | |
| 21 | *Deschimag, Bremen* | 1936 | 13/ 7/36 | |
| 22 | | | 29/ 7/36 | |
| 23 | | | 28/ 8/36 | |
| 24 | | | 24/ 9/36 | |

U 18 sunk by collision, Nov. 1936, but was salved shortly afterwards.

## Training Ships.

(*Schulschiffe*) (ex-Battleships)

SCHLESIEN. 1937, *Fighting Ships.*

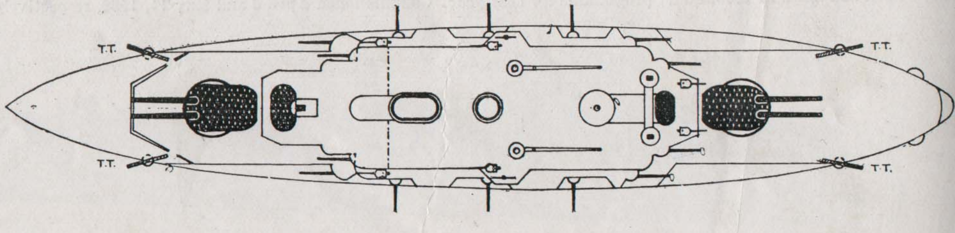
+ **SCHLESIEN** (May, 1906), + **SCHLESWIG-HOLSTEIN** (Dec. 1906).

Displacement, 13,040 tons. Complement, 718.

Length $\left\{\begin{matrix} (w.l.) & 413 \\ (o.a.) & 419 \end{matrix}\right\}$ feet. Beam, 72⅘ feet. *Mean* draught, 25¼ feet.

Guns:
**4**—11 inch, 40 cal.
**10**—5·9 inch, 45 cal.
**6**—3·5 inch AA.
**4** M.G.
Torpedo tubes:
(*Removed*)

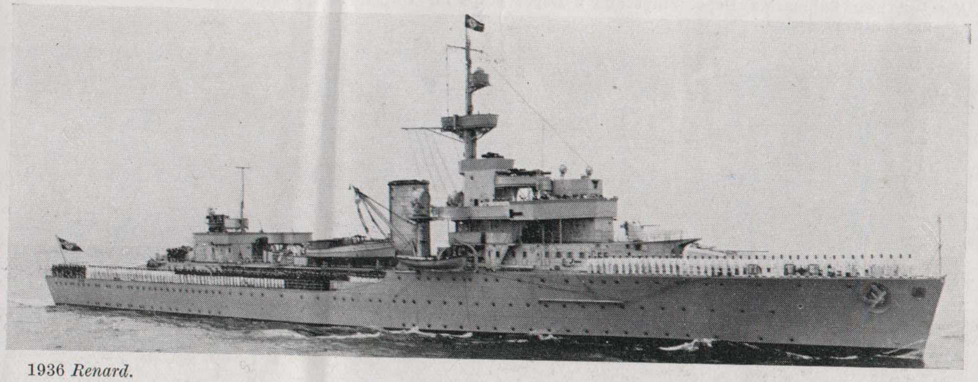
Armour:
9½″ Belt (amidships) .....
4″ Belt (ends) .........
3″—1½″ Deck .........
11″ Barbettes ..........
10″ Turrets to these,
lower deck (side) ......
6¾″ Battery...........
12″ Conning tower (fore) ...
6″ ,, ,, (aft) ..



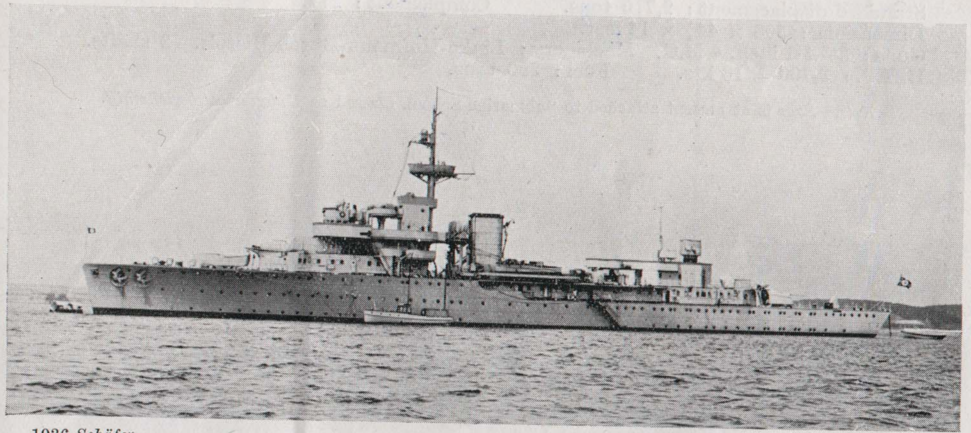
*Note to Plan:* Upper deck 5·9 inch guns and torpedo tubes removed.

Machinery: 3 sets 3 cylinder triple expansion. 3 screws. Boilers: 12 Schulz-Thornycro Designed H.P. 17,000/19,300 = 18 kts. Coal: *normal*, 800 tons; *maximum*, 1800 tons. fuel: 230 tons. *Nominal* radius: 5900 miles at 10 kts.

*Notes.-Schlesien* and *Schleswig-Holstein*, built by Schichau, Danzig, 1904–08, and Germania, Kiel, 1905–08, respective Both were reconstructed and partially re-armed in 1926–28, and are employed as Cadets' Training Ships.



1936 *Renard.*



1936 *Schäfer.*

**BRUMMER** (Deschimag, Bremen, May 29, 1935.)

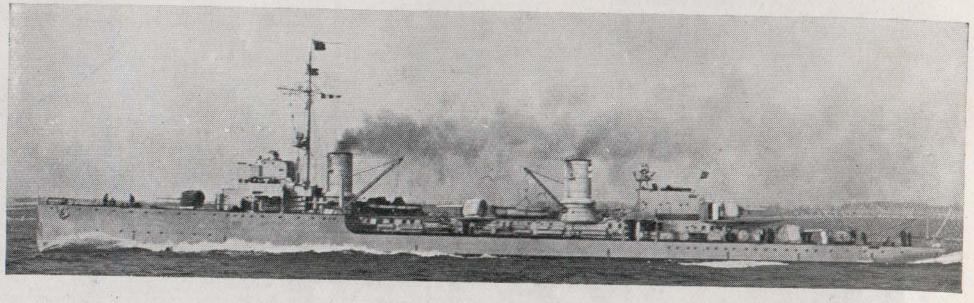
*Standard* Displacement : 2,410 tons. Complement, 197.

Dimensions : 354⅓ × 44⅓ × 11½ feet.

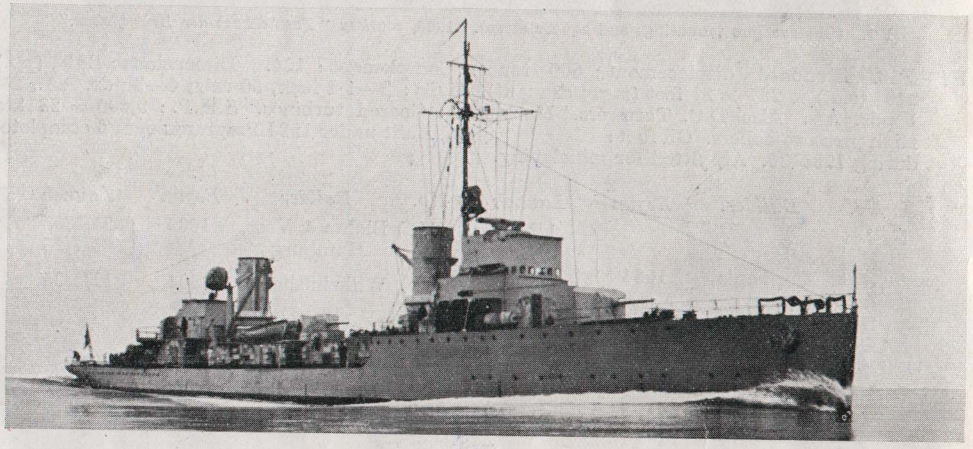
Guns : **4**—3·5 inch AA. (new model), **2**—3·5 inch AA. (of older pattern), **4**—3 pdr. AA. (Number and calibre of guns likely to vary from time to time.)

Machinery : Geared turbines. High pressure w.t. boilers. (Also reported to have Diesels). Speed : 20 kts. (in service), but believed capable of considerably more.

*Notes.*—Laid down 1934 under current programme : commissioned Feb. 8, 1936. Used as AA. gunnery training ship. In emergency she would become a combatant unit of fleet. It has been suggested that she might be most suitable as escort to an aircraft carrier. Unofficial reports suggest that she is not an unqualified success. She spent several months of 1936 in dockyard hands, undergoing repairs and alterations.



1933 *Photo, Official*



1934 *Photo.*

**BREMSE** (Wilhelmshaven, Jan. 24, 1931.)

*Standard* Displacement, 1,250 tons. Complement, 162.

Dimensions : 318¼ (*w.l.*), 339½ (*o.a.*) × 31 × 9½ feet.

Guns : **4**—5 inch, **2**—20 mm. AA. (Modified at times for testing other calibres.)

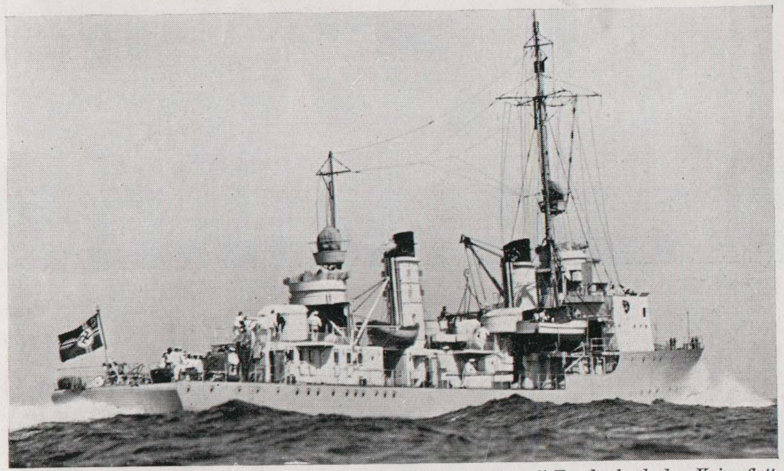
Machinery : 8 M.A.N. double acting, 2 stroke, geared Diesels. 2 shafts. Designed H.P. : 25,000 = 27 kts. Oil fuel :

*Note.*—Boat derricks are arranged to handle heavy targets in a seaway. Her 27 knots will permit of high speed towing —a necessary provision in modern gunnery practice. She is extremely noisy when under way. Laid down, 1929 : completed, 1931

*Engineering Notes.*—Machinery comprises eight 8-cyl. M.A.N. two-stroke engines of 600 r.p.m. reduced by Vulcan gearing to shaft speed of 400 r.p.m. Four engines to each shaft (twin screw). Total 26,000 S.H.P. Height of engines 8ft. 6in. from top to centre of shaft. Machinery power per litre is 7·38 b.h.p. against 5·14 b.h.p. per litre in *Deutschland.*

## Escort Vessels

*(Geleitboote)*

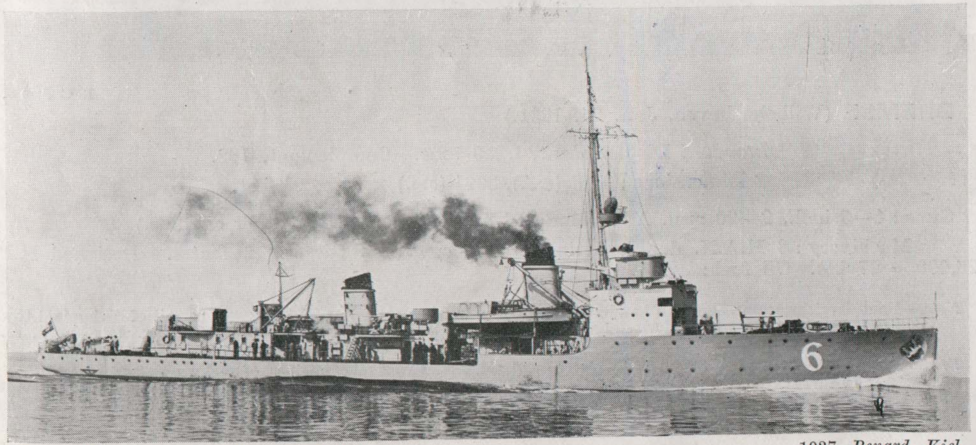


5

F 1. (Observe gun mountings and square stern). 1936, *courtesy "Taschenbuch der Kriegsflotten."*

**F1—F10.** Standard displacement: 600 tons. Complement: 124. Dimensions: 241 (*pp.*), 249⅓ (*o.a.*) × 28¾ × 8¼ feet (*mean* draught). Guns: **2**—4·1 inch, 50 cal.; **4**—3 pdr. AA., **2**—1 pdr. AA. Also D.C. Throwers. Machinery: Geared turbines. S.H.P.: 9,000 = 28 kts. High pressure boilers. Oil fuel: tons. Built under 1934 Programme, and completed during 1935–36. Are fitted for minelaying.

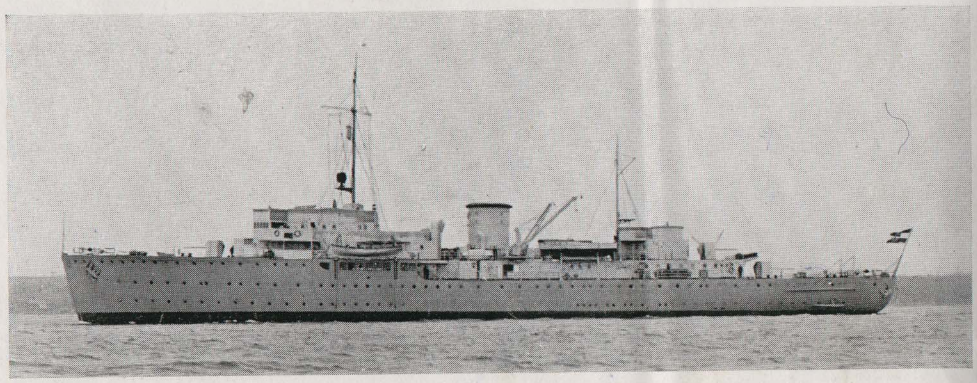
| *No.* | *Builder.* | *Begun* | *Launch* | *No.* | *Builder* | *Begun* | *Launch* |
|---|---|---|---|---|---|---|---|
| **F 1** | Germania, Kiel | 1934 | 1/3/35 | **7** | Blohm & Voss, Hamburg | 1935 | 25/5/35 |
| **2** | | | 2/4/35 | **8** | | | 25/7/35 |
| **3** | | | 1/6/35 | **9** | Wilhelmshaven | 1934 | 11/5/35 |
| **4** | | | 2/7/35 | **10** | | | |
| **5** | | | 14/8/35 | | | | |
| **6** | | | 1/10/35 | | | | |



F 6. (All of class being altered similarly). 1937, *Renard, Kiel.*

## Depot and Repair Ships.

*Note.*—2 new Submarine Depot Ships and 2 Depot Ships for Torpedo Craft are under Construction, 1937. 2 more are projected.

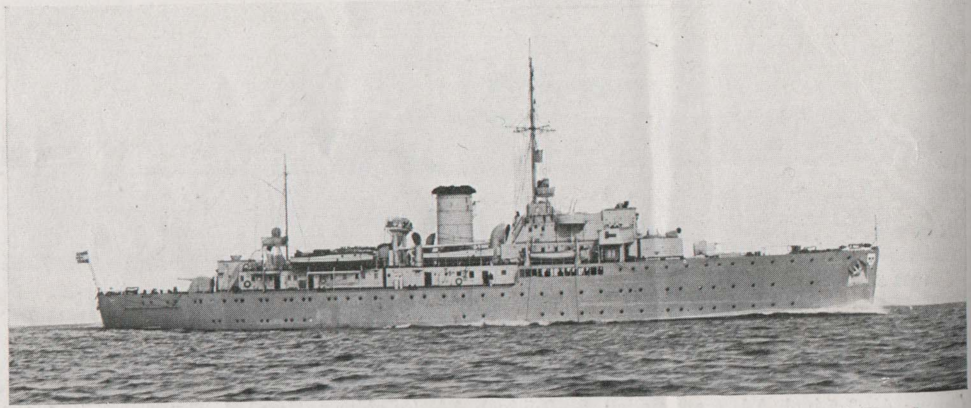


1934, *Schäfer.*

**SAAR** (Deutsche Werke, Kiel, April 5, 1934).

Standard displacement: 2,710 tons. Complement: 217.
Dimensions: 308 × 44¼ × 14 feet.
Guns: **3**—4·1 inch, **4** M.G. Machinery: Linke-Hofmann-Busch Diesels. 2 shafts.
B.H.P.: 3,700 = 16 kts. Fuel: 290 tons.

*Note.*—*Saar* is at present attached to Submarine School. Classed as *Unterseebootsbegleitschiff*.

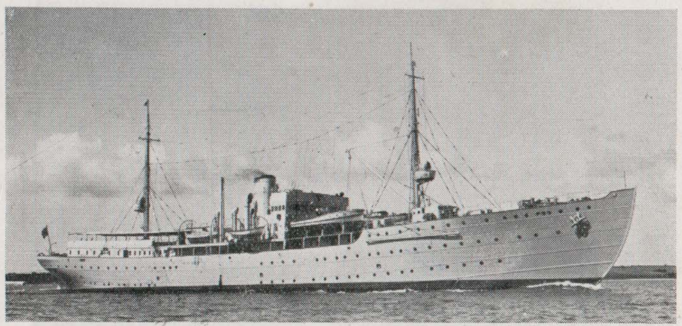


1935, *Renard.*

**TSINGTAU** (Blohm & Voss, Hamburg, June 6, 1934).

Standard displacement: 1,970 tons. Complement: 137.
Dimensions: 278¾ × 44¼ × 12⅔ feet.
Guns: **2**—3·5 inch AA., **4** M.G. Machinery: Linke-Hofmann-Busch Diesels. 2 shafts.
B.H.P.: 4,100 = 17·5 kts. Fuel: 182 tons.
Depot ship for Motor T.B. Classed as *Schnellbootsbegleitschiff*.

## Depot Ships—*continued.*



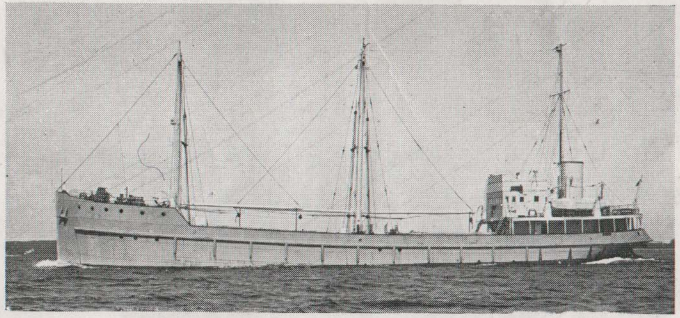
1937, *Schäfer.*

**WEICHSEL** (ex-*Syra*), (Howaldt, Kiel, 1923). Displacement: 3,974 tons. Dimensions: 309¼ × 44 × 13½ feet. Machinery: Triple expansion. H.P.: 1,400 = 10·5 kts. Coal: 425 tons. 2 watertube boilers. (Depot Ship for Submarines.)

*Note.*—Purchased in summer of 1936 and rebuilt at Stettin.

(Of similar appearance to *Weichsel.*)

**DONAU** (ex-*Nicea*), (Lübeck, 1922). Displacement: 3,886 tons. Dimensions: 287½ × 41½ × 14 feet. Machinery: Triple expansion. H.P.: 1,150 = 10 kts. Coal: 335 tons. 2 watertube boilers. (Depot Ship for Submarines.)

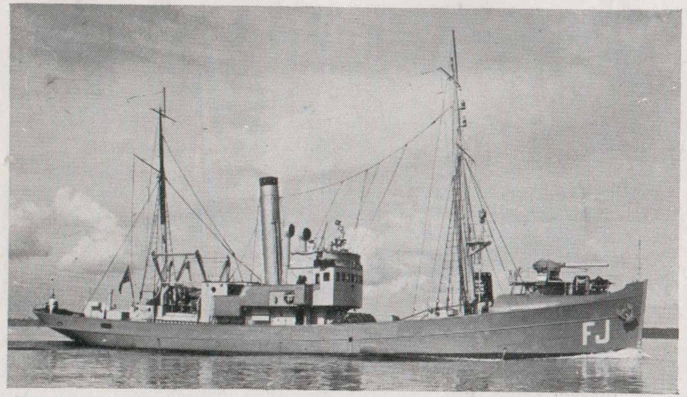


1937, *Schäfer.*

**MOSEL** (ex-*Frieda*). Displacement: 796 tons. Speed: 9 kts. Further particulars wanted. (Depot Ship for Submarines.)

## Patrol Vessels.

(*Vorpostenboote*)



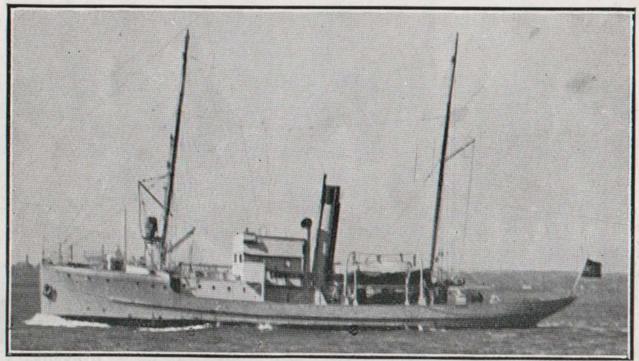
FRITHJOF. 1937, *Schäfer.*

(All similar except *Hagen*, in which deckhouse extends further aft.)

**BEOWULF** (ex-*Joh. Vester*), **FREYR** (ex-*Glücksburg*), **FRITHJOF** (ex-*N. Ebeling*), **HEIMDALL** (ex-*Lauenburg*), **SIGFRID** (ex-*Esteburg*), **WOTAN** (ex-*Augustenburg*), **HAGEN, HILDEBRAND, HUGIN, MUNIN, ODIN, VOLKER,** (1912–16). Ex-Trawlers, acquired 1937. Displacement: 400 tons. Dimensions vary from 117 × 22 × 11 to 136 × 24 × 11½ feet. Gun: 1—3·5 inch, 1—1 pdr. A.A. Machinery: Triple expansion. I.H.P.: 400 = 10 kts.

## Torpedo Tender.

(Classed as *Torpedobergungsdampfer*)



**ORKAN** (ex-*Welle*, ex-*Grille*, ex-*Star of Eve*, ex-*Von der Goltz*). (Hamburg, 1916.) Purchased 1927. 260 tons *gross.* Complement: 22. Dimensions: 120 × 24 × 12½ feet. H.P.: 400 = 10 kts. Coal: 65 tons.

*Note.*—Sank in heavy weather, 1937, but has been salved and refitted. Used for recovery of practice Torpedoes.

## Minesweepers.

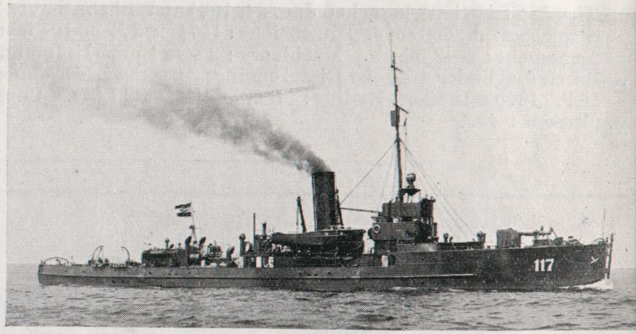
(*Minensuchboote*)

*Building.*

**M1—M12.** 600 tons. Guns: 2—4·1 inch, 1—37 mm. All la down during 1936 under programme of that year and t preceding one.

**M13—M24.** Believed to be of similar type. Laid down 1937.

Builders of these 24 vessels are: H. C. Stülcken Sohn, Hambur Stettiner Oderwerke, Stettin; and Lübecker Flenderwerk Lübeck.



M. 117. 1934 *Photo, Schäfe*

23 boats:—

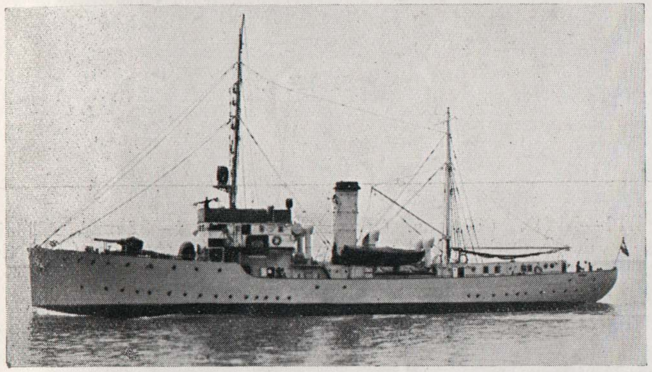
**M 157**
**M 145**
**M 136**
**M 132**
**M 129**
**M 126**
**M 122**
**M 117**
**M 111**
**M 110**
**M 109**
**M 107**
**M 104**
**M 102**
**M 98**
**M 89**
**M 85**
**M 84**
**M 75**
**M 72**
**M 61**
**M 60**
**M 50**

Built 1916–1920. Displacement: *M.*157—60, 525 tons: *M.*5 500 tons. Dimensions: 184 (*w.l.*), 192 (*oa.*) × 24¼ × 7¼ fee *M.*50, 180½ × 24 × 7½ feet. Guns: 1—4·1 inch., 1—M. Engines: 2 sets triple expansion. Boilers: 2 water-tu "Schulz." I.H.P.: 1,850 = 16 kts. (*M.*50, 1,800 = 16·5 kts 2 screws. Coal: 145–160 tons. Complement: 51. (*M.* 50, 4

*Note.*—Only a few units are maintained in commission. *M* 102 is tender to gunn school and mounts 3—3·5 inch instead of armament given above. 13 ot units of this class have been given names on appropriation for vari special services, vide later pages.

## Fishery Protection Vessels.

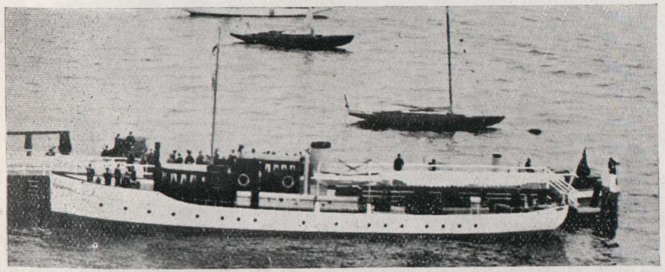
(*Fischereischutzboote*).



ELBE. 1933 *Photo.*

**ELBE, WESER** (both launched Jan. 24, 1931 at Wilhelmshaven). Displacement: 600 tons. Dimensions: $157\frac{1}{2} \times 27\frac{1}{4} \times 10\frac{1}{4}$ feet. Armament: 1—3·5 inch. Machinery: 2 sets Linke-Hofmann-Busch 6-cylinder 4-stroke Diesel engines. 2 screws. Designed H.P. 1600 = 15 kts. Radius: 7000 miles at 11 kts. Complement: 48.

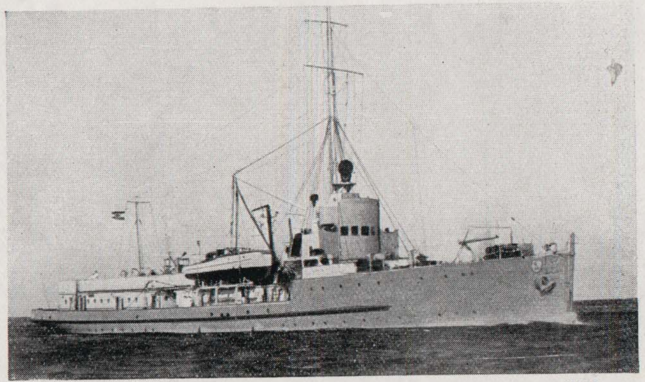
## Harbour Tender.



NIXE. 1935 *Photo.*

**NIXE** (ex-*Fiora*, Harburg, 1914). Displacement: 108 tons. Dimensions: $96\frac{3}{4} \times 16\frac{1}{3} \times 5\frac{1}{2}$ feet. Machinery: 2 Daimler 4-cylinder 4-stroke benzol engines. 2 screws. H.P.: 200 = 13 kts. Fuel: 10 tons. Complement: 13. (Purchased 1916.)

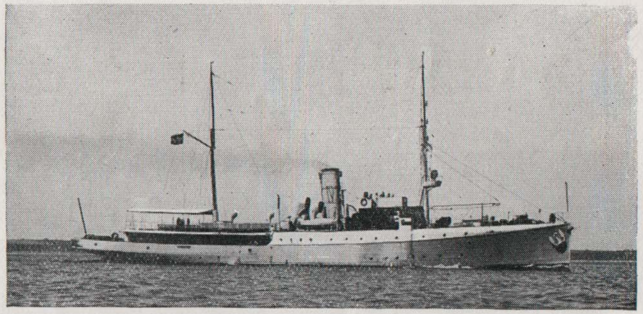
## Station Tenders.



ZIETEN. 1935.

**ZIETEN** (ex-*M* 138, Tecklenborg, Feb. 17th, 1919). Displacement: 550 tons. Dimensions: $184 \times 24 \times 7\frac{1}{2}$ feet. Guns: 1—4·1 inch. 2 sets Diesel engines each 420 B.H.P. = 12 kts. Complement: 40. Fuel: 90 tons.

*Note.*—Ex-Minesweeper converted for service as *Raumbootsbegleitschiff* in 1934.

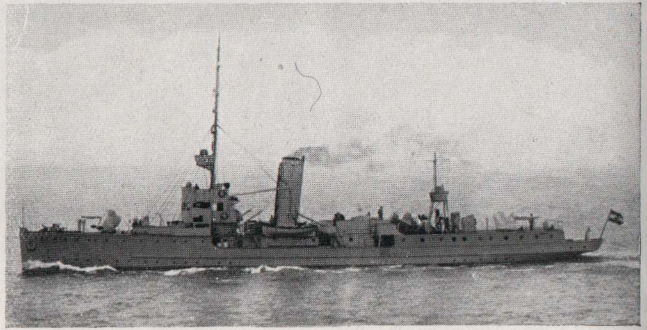


1930 *Photo.*

**NORDSEE** (Atlas Werke, Bremen, 1914). 825 tons. Complement, 57. Dimensions: $175\frac{3}{4} \times 30\frac{3}{4} \times 12$ feet. Armament: Nil. Machinery: Triple expansion. H.P.: 1,680 = 12 kts. 2 screws. Coal: 105 tons. Well deck built up 1923.

## Gunnery School Tenders.

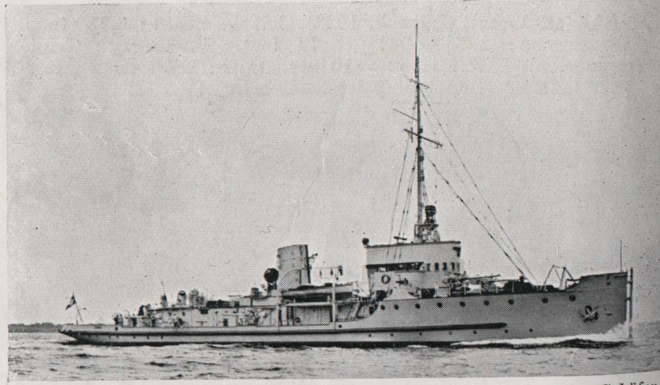
(*Artillerieschulboote*).



FUCHS. 1930 *Photo.*

**FUCHS** (ex-*M* 130, 1919). Displacement: 525 tons. Dimensions: $184 \times 24 \times 7\frac{1}{4}$ feet. Guns: 2—4·1 inch AA. Machinery: 2 sets triple expansion. Boilers: 2 Schulz w.t. 2 screws. I.H.P.: 1,850 = 16 kts. Coal: 160 tons. Complement: 49.

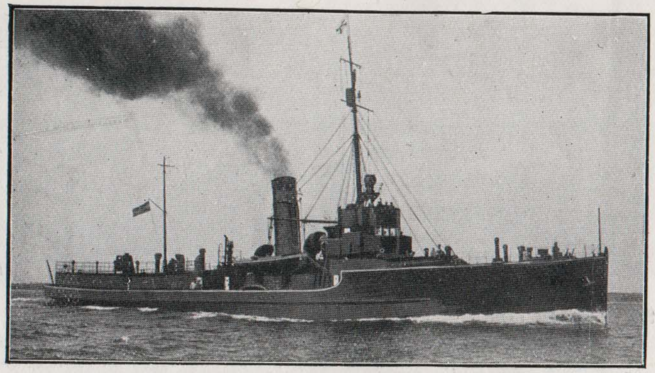
*Note.*—To be replaced in 1936. On occasions mounts 3·5 inch instead of 4·1 inch guns.



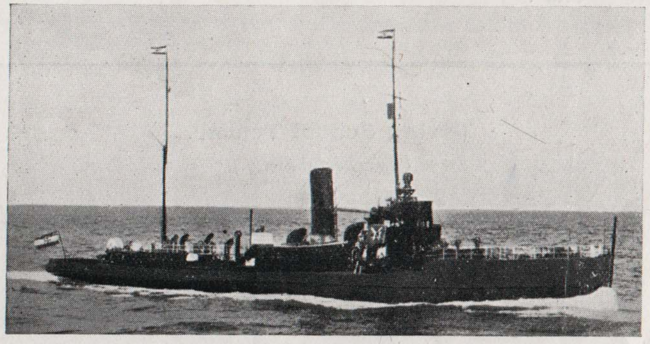
1936, *Schäfer.*

**DRACHE** (Germania, 1908). 790 tons. Dimensions: $176 \times 31\frac{3}{4} \times 10\frac{1}{2}$ feet. Complement: 66. Guns: 6—4·1 inch. 1—20 mm. AA. Machinery: Geared turbines. High pressure watertube boilers. Oil fuel. Speed believed to exceed 18 kts. with this new installation.

## Tenders.



Hela. 1925 *Photo, Renard.*

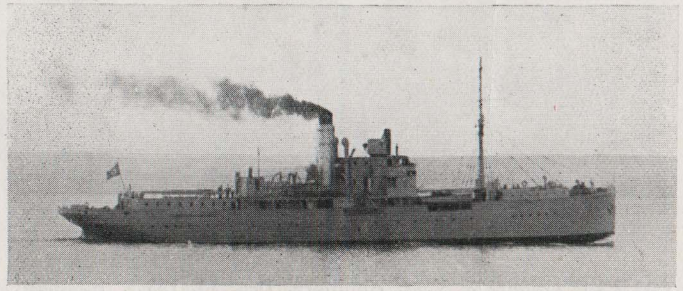


Frauenlob. 1933 *Photo.*

**NAUTILUS** (ex-*M*.81, 1919), **JAGD** (ex-*M*.82, 1917), **DELPHIN** (ex-*M*.108, 1919), **ACHERON** (ex-*M*.113, 1918), **ARKONA** (ex-*M*.115, 1918), **WACHT** (ex-*M*.133, 1919), **FRAUENLOB** (ex-*M*.134, 1919), **HELA** (ex-*M*.135, March 15, 1919), **TAKU** (ex-*M*.146, 1918). Ex-Minesweepers of 525 tons. Complement, 49. Dimensions : 184 × $24\frac{1}{4}$ × $7\frac{1}{4}$ feet. Guns : **1**—4·1 inch in some, none in others. Machinery : 2 sets triple expansion. 2 shafts. I.H.P. : 1,850 = 16 kts. Boilers : 2 Schulz w.t. Coal : 160 tons. *Acheron* classed as Submarine Tender (*Unterseebootstender*). *Nautilus* and *Arkona*, used as Mining Tenders, but classed as Experimental Vessels. *Frauenlob*, Station Tender. *Delphin*, former Gunnery School Tender, now out of commission ; *Hela* classed as Fleet Tender ; *Jagd*, *Taku*, and *Wacht* as Minesweepers.

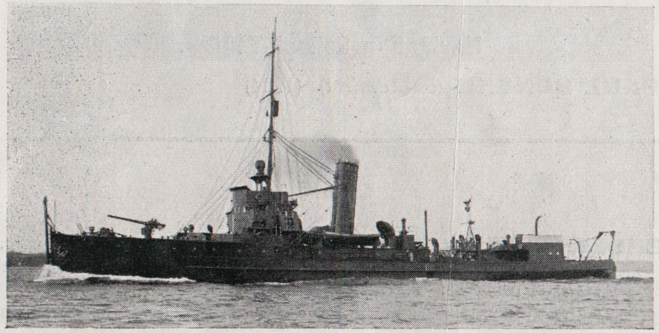
## Experimental Tenders.

(Classed as Versuchsboote).



1937, *Courtesy "Taschenbuch der Kriegsflotten."*

**STRAHL** (ex-*Latona*, ex-*Soneck*, 1902). Displacement : 1,643 tons. Complement : 35. Dimensions : 235 × $33\frac{1}{2}$ × $11\frac{1}{3}$ feet. Machinery : Triple expansion. I.H.P. : 800 = 10 kts. 1 cyl. boiler. First Commissioned Oct. 20, 1936.



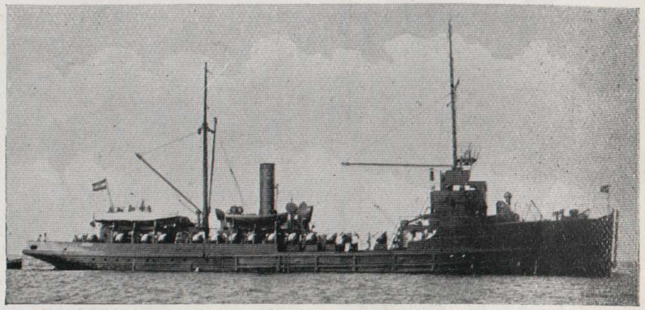
Pelikan (ex-*M*. 28) 1934 *Photo, Schäfer.*

**PELIKAN** (ex-*M*.28, 1916). Displacement : 500 tons. Complement : 49. Dimensions : $180\frac{1}{2}$ × 24 × $7\frac{1}{2}$ feet. Guns : **1**—4·1 inch. Machinery : 2 sets triple expansion. 2 shafts. I.H.P.: 1,800 = 16·5 kts. Boilers : 2 Schulz w.t. Coal : 145 tons.

**STÖRTEBEKER** (ex-*M*. 66, 1918). Displacement : 525 tons. Complement : 49. Dimensions : 184 × $24\frac{1}{4}$ × $7\frac{1}{4}$ feet. Guns : **1**—4·1 inch, **1** M.G. Machinery : 2 sets triple expansion. 2 shafts. I.H.P. : 1,850 = 16 kts. Boilers : 2 Schulz w.t. Coal : 160 tons.

## Minelaying Tenders.

(Classed as *Sperrübungsfahrzeuge*).

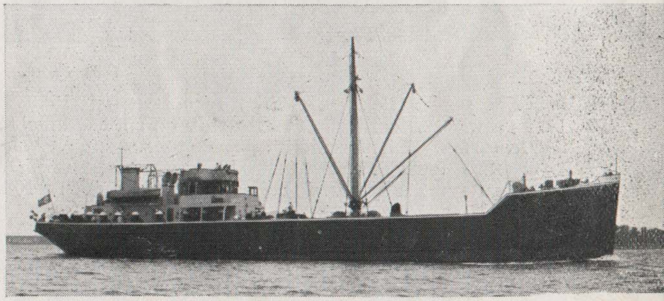


MT 1 1930 *Photo.*

**MT**1 (ex-*Heppens*), **MT**2 (ex-*Mariensiel*). Both launched 1917 at Neptun Yard, Rostock. Displacement : 570 tons. Dimensions : 164 × $30\frac{1}{2}$ × $7\frac{1}{2}$ feet. Armament : **1** M.G. Machinery : 2 screws triple expansion. Boilers : 2 single-ended coal-burning Schulz-Thornycroft. 2 screws. Designed H.P. : 375 = 10 kts. Radius : 1,200 miles at 7 kts. Coal : 37 tons. Complement : 47.

*Notes.*—There are also C 3, 5, 9, 11, 13, 14, 16 (1906–15), old steamers of 75–8 tons, and Nos. I–IV (1936), 120 tons, belonging to the Blocking Division.

## Mine Transports.

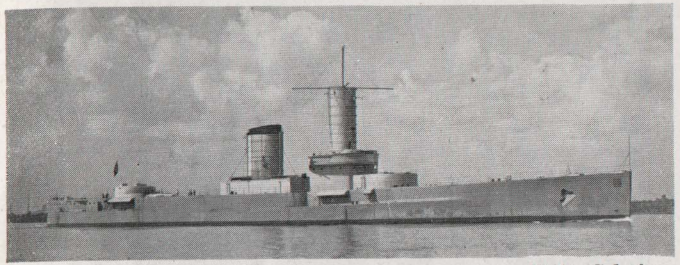


Lauting. 1937, *Schäfer.*

**LAUTING, OTTER, RHEIN.** *Standard* displacement : 1,200 tons. Speed : 9·5 kts. Other particulars wanted.

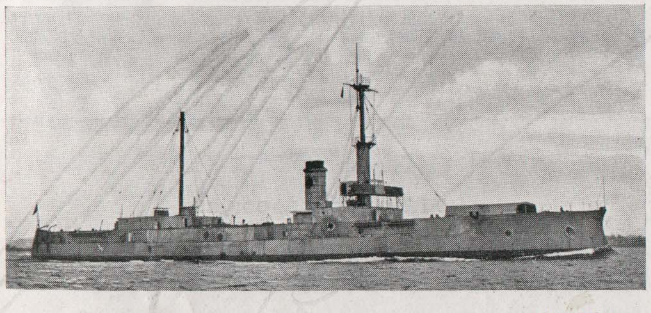
## Target Ships.

(Controlling vessels are ex-T.B. *Komet*, *Blitz* and *Pfeil*, described below.)



1937, *Schäfer*.

**HESSEN** (ex-Battleship). (1903). Reconstructed 1936–37 as a wireless-controlled target ship. Displacement: 13,200 tons. Dimensions: 400¼ × 73 × 23½ feet. H.P.: 16,000 = 20 kts. Oil fuel and automatically fired boilers.



1934 *Photo*.

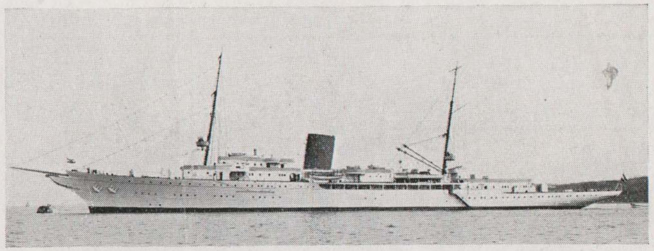
**ZÄHRINGEN** (ex-Battleship), (1901), reconstructed 1926–28 for use as a wireless controlled target ship on similar lines to British *Centurion*. Displacement: 11,800 tons. Dimensions: 393½ × 68⅚ × 25 feet. H.P. 5,000 = 13 kts. 2 screws. Oil fuel and automatically fired boilers. Complement: 104.

## Wireless Control Vessels.

**BLITZ** (ex-*T*. 185, Vulcan, 1910), **PFEIL** (ex-*T*. 139, 1906). **KOMET** (ex-*T*. 155, Vulcan, 1907). Ex-Torpedo boats, used for wireless target control. 637, 530 and 660 tons, respectively.

## Admiralty Yacht.

(Officially classed as *Aviso*.)



1935, *Renard*.

**GRILLE** (Blohm & Voss, Hamburg, Dec. 15, 1934). Standard displacement: 2,560 tons. Complement, 240. Dimensions: 377¼ × 44¼ × 11¼ feet. Guns: **3**—4·1 inch, **2**—37 mm. AA., **4** M.G. Geared turbines. S.H.P.: = 20 kts. High pressure watertube boilers. Oil fuel: tons. Commissioned May 20, 1935, and used for Training duties with destroyers and submarines and as Tender to Signal School.

## Navigation School Tender.

**PAUL BENEKE** (ex-*Admiral*) (1934)

## Oilers.

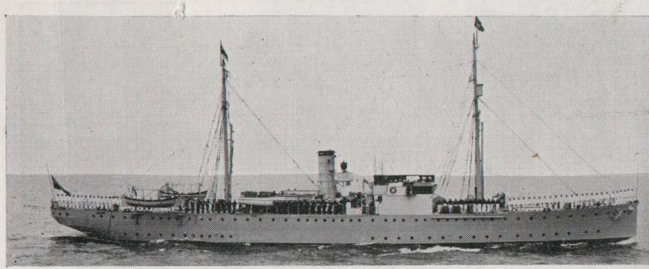
**BRÖSEN** (Howaldt, Kiel, 1915) Displacement: 2,489 tons *standard*. Dimensions: 233 × 34½ × 16 feet. Machinery: Triple expansion. I.H.P.: 250 = 8 kts.

**WOLLIN** (Reiherstieg, Hamburg, 1916). Displacement: 3,429 tons. Dimensions: 246 × 36 × — feet. Machinery: Triple expansion. I.H.P.: 600 = 9·5 kts.

**NORDERNEY.** Displacement: 1,110 tons. Speed: 7 kts.

## Surveying Vessel (*Vermessungsschiff*).

*Note*—A new Surveying Vessel will be begun in 1938.



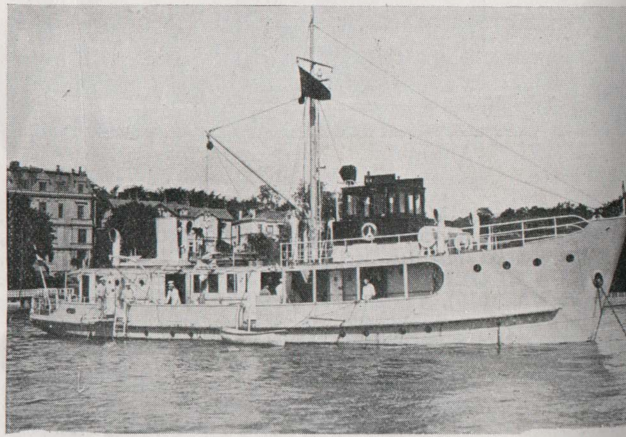
1934 *Photo*.

**METEOR** (Danzig, Jan. 18, 1915). 1,200 tons. Complemen 111. Dimensions: 219⅕ × 33½ × 12½ feet. Guns: **1**— inch. Machinery: 2 sets 8 cyl. 4-stroke Diesels. 2 scre H.P.: 2,200 = 14·5 kts. Completed June, 1925, and co verted to Diesel propulsion in 1934.

***PEILBOOT II*** and ***PEILBOOT V*** serve as Coastal Surveyi Craft.

## Diving School Tender.

(*Taucherfahrzeug*.)



TAUCHER 1935, *Renar*

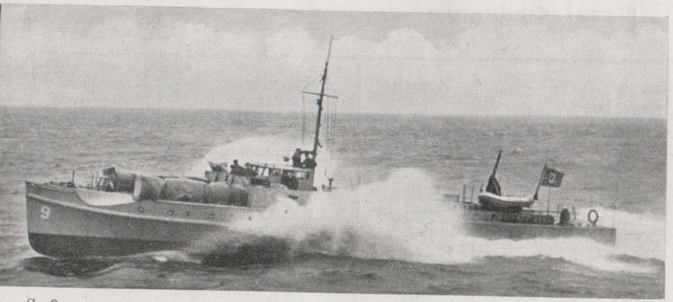
**TAUCHER** (Stulcken & Sohn, Hamburg, 1935). Commissio April 16, 1935. 195 tons. Complement, 17. Dimensio 88½ × 22⅓ × 6¼ feet. Diesel engine. H.P.: 60 = 6·5 k No armament.

## Motor Torpedo Boats.

(*Schnellboote*)

**S 20—25,** under construction.

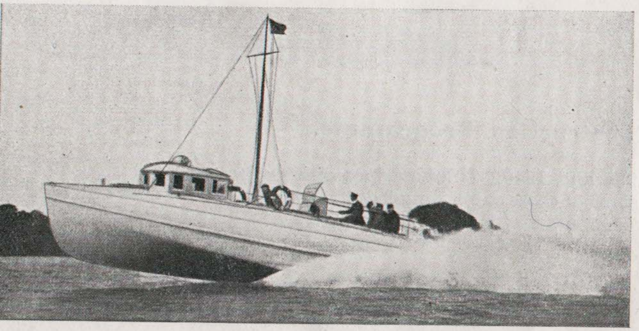
30



S. 9. 1937.

14 boats : **S 6—19** (Lürssen, Vegesack, 1933–37). Displacement : 62 tons. Length : (*o.a.*) 93 feet. Armament : 2—19·7 inch T.T., 1—1 pdr. AA. Machinery : High speed M.A.N. Diesels or Daimler Benz petrol engines. H.P. : 2,400 = 30–36 kts. Complement : 17.

*Note.*—All these boats are of wood or composite section U-form, exceptionally stout and seaworthy.



UZ (S) 18.

Boat : **UZ (S) 18** (1929). Displacement : 26 tons. Dimensions : $70 \times 13\frac{3}{4} \times 3\frac{1}{4}$ feet. Armament : none. Machinery : 3 sets 6 cylinder 4-stroke benzol engines. 3 screws. Designed H.P. : 720 = 27 kts. Fuel : 3 tons. Complement : 8.

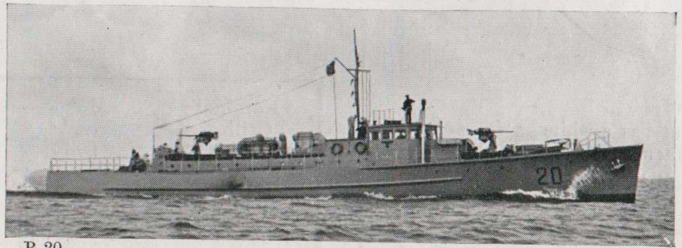
*Note.*—Now relegated to Harbour service.

1940-41г.
95т
2-20
2 пул
2-533

## Motor Launches.

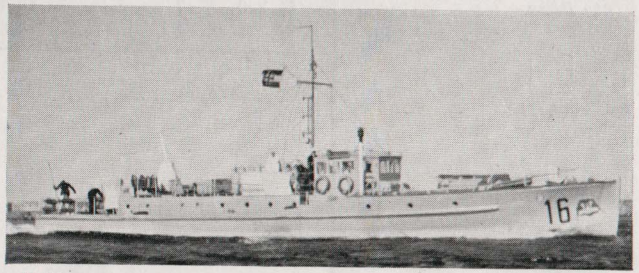
(Classed as *Räumboote*.)

48



R 20. 1936.

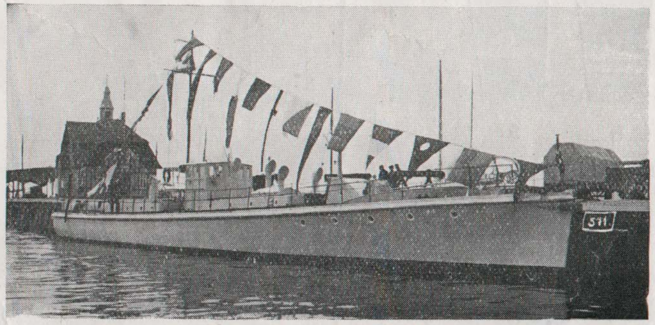
14 boats : **R 17—30** (Travemünde and Weser Yards, 1935–37). Displacement : 90 tons. Guns : 2—1 pdr. AA. Machinery : 2 M.W.M. Diesels with Voith-Schneider propellers. B.H.P. : 1,800 = 18 kts. Complement, 17.



R 16. 1935 *Photo.*

16 boats : **R 1—16** (Lürssen, Vegesack, and other Weser Yards, 1930–35). Displacement : 45 tons. Length : 85 feet. Armament : 1—1 pdr. AA. Machinery : 2 M.W.M. Diesel engines. 2 shafts. Designed H.P. : 600 = 18 kts. Complement, 15.

*Note.*—*R* 8, 16 fitted with Voith-Schneider propellers.



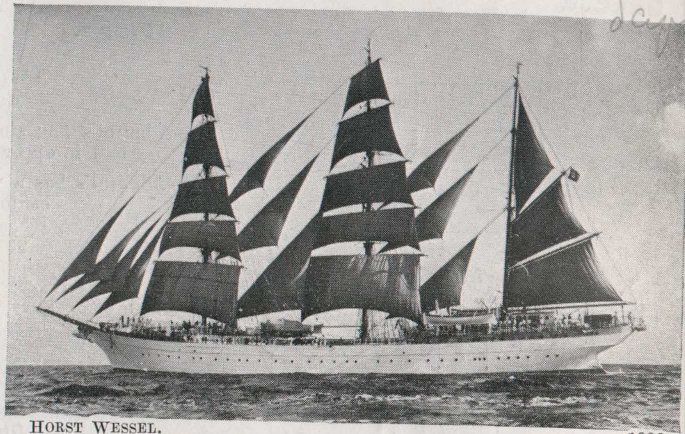
1930 *Photo.*

(Classed as *Bewachungsfahrzeuge*).

2 boats : **UZ 32, 33** (1919–20). 60 tons. Dimensions : $101\frac{1}{2} \times 14\frac{1}{3} \times 4$ feet. Machinery : 2 Benz 6-cylinder, 4-stroke benzol engines. H.P. : 500 = 14 kts. 2 screws. Fuel : $8\frac{1}{2}$ tons. Complement, 17.

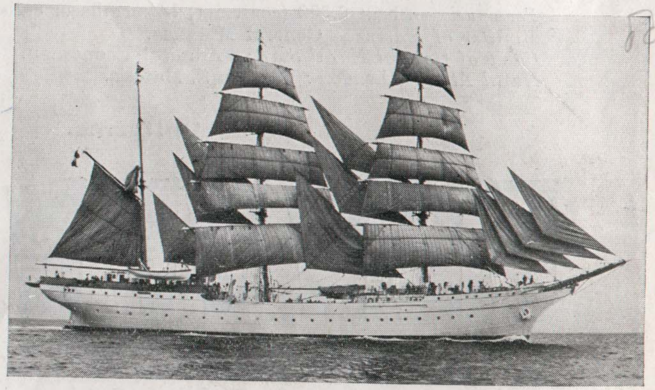
## Training Ships.

(*Schulschiffe*)



Horst Wessel. 1936

**HORST WESSEL** (June 13, 1936), **LEO SCHLAGETER** (Oct. 31, 1937). Both built by Blohm & Voss, Hamburg. Barque. *H.W.* begun Feb. 15, 1936, and completed Sept. 17, 1936. Displacement : 1,750 tons. Complement, 289, including 200 midshipmen. Dimensions : $265\frac{3}{4}$ (*pp.*), $295\frac{1}{4}$ (*o.a.*) $\times 39\frac{1}{3} \times 15\frac{3}{4}$ (*mean*), $16\frac{1}{2}$ feet (*max.* draught). Machinery : M.A.N. auxiliary Diesels. B.H.P. 700 = 10 kts. Sail area, 21,530 sq. feet.



1933 *Photo.*

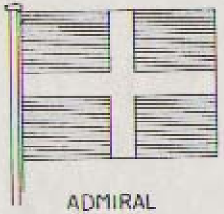
**GORCH FOCK** (Blohm & Voss, Hamburg, 1933). Displacement: 1,486 tons. Dimensions : 200 (*pp.*), $241\frac{2}{3}$ (*o.a.*) $\times 39\frac{1}{3} \times 15$ feet. M.A.N. auxiliary Diesels. H.P. : 500 = 8 kts. Fuel : 25 tons. Sail area : 19,376 sq. ft. Complement, 255.

*Note.*—20 per cent. of the cost of this vessel was defrayed by public subscription organised after the loss of the *Niobe*, the previous sail training ship of the German Navy.

**ASTA, ORION.** Small sailing yachts used for coastal training. Officially classed as *Segelfahrzeuge bei den Stationen*. Latter vessel was built at Travemünde and commissioned April 22, 1936.

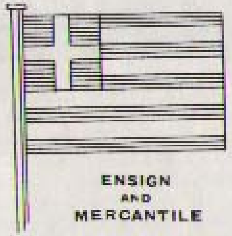
# GREECE.

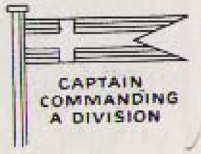
## Flags.

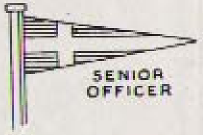


Vice-Admiral's flag similar, but has a white ball in upper left canton.

Rear-Admiral's has a white ball in each left canton.





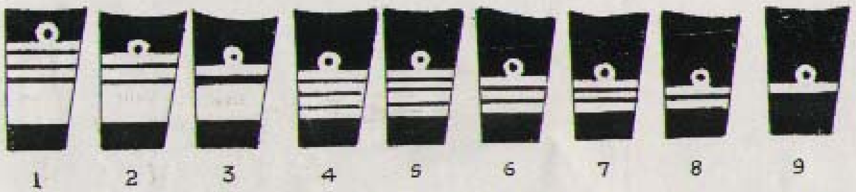


▤ *Sky Blue*

☐ *White*

*Personnel*:—About 6,300 (conscript, 18 months or enlistment).
*Minister of Marine*:—General Metaxas.
*Chief of General Naval Staff*:—Admiral Economou.
*Naval Attaché, London*: Captain S. Matesis.

## Uniforms.



(1) Navarkhos *Admiral*. (2) Andinavarkhos. *Vice-Admiral*. (3) Yponavarkhos. *Rear-Admiral*. (4) Ploiarkhos. *Captain*. (5) Andiploiarkhos. *Commander*. (6) Plotarkhis. *Lieutenant-Commander*. (7) Ypoploiarkhos. *Lieutenant*. (8) Anthipoploiarkhos. *Sub-Lieut*. (9) Simaeophoros. *Act. Sub-Lieut*.

Other branches without curl:—
Constructors: *black velvet*.
Paymasters: *scarlet velvet*.
Surgeons: *purple velvet*.
Apothecaries: *green velvet*.
[illegible]on: *light green velvet*.
[illegible]d: *black*.

[illegible] curl:—
Eng[illegible]s: *violet velvet*.

## Tonnage.

At Standard Displacement.

## Mercantile Marine.

From "Lloyd's Register" 1937.
613 vessels of 1,855,435 Tonnage.

B..Kyazd

## Naval Ordnance

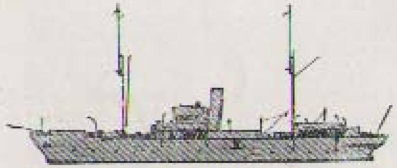
| Nominal Calibre In. | Nominal Calibre Cm. | Maker and Date | | Length in Calibres | Weight of Gun | Weight of Projectile | Muzzle Velocity Foot-sec. | Muzzle Energy Foot-tons |
|---|---|---|---|---|---|---|---|---|
| | | | | | Tons. | lb. | | |
| 9·2 | 23·3 | A. | 1906 | 45 | 27·2 | 380 | 2,725 | 18,550 |
| 7·5 | 19 | A. | 1906 | 45 | 14 | 200 | 2,888 | 11,746 |
| 6 | 15·2 | A. | 1910 | 50 | 9 | 100 | 2,986 | 6,238 |
| 4·7 | 12 | An. | 1926 | 50 | 3 | 48 | 3,117 | 2,200 |
| 4 | 10·2 | B. | 1910 | 50 | 2·6 | 33 | 2,789 | 1,791 |
| 3·9 | 10 | C. | 1917 | 40 | 1·6 | 30 | 2,632 | 1,730 |
| 3·5 | 8·8 | K. | 1907 | 30 | 1 | 18 | 2,500 | 1,000 |
| 3 | 7·6 | A. | 1908 | 45 | 14 cwt. | 15 | 2,492 | 700 |
| 2·6 | 7 | S. | 1905 | 30 | 12 cwt. | 9 | 2,000 | 400 |
| | 4 | V. | 1917 | | 5 cwt. | 2 | 2,000 | |

A = Armstrong; An. = Ansaldo; B = Bethlehem; C = Schneider-Canet; K = Krupp
S = Skoda; V = Vickers.

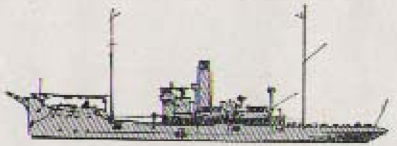
## New Construction Programme.

12 Destroyers to be built between 1937 and 1940. 2 Submarines also projected. Though tenders have been invited for some of these ships, only 2 destroyers have so far been ordere

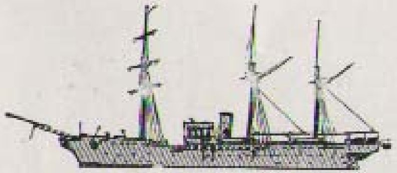
Передано Алексей 1/49
ЭМ - 10
ТЛ - 6
Кор - 11
Тщ - 8
ОхЭТЛ - 17
Таллин-греческий [illegible] - 6



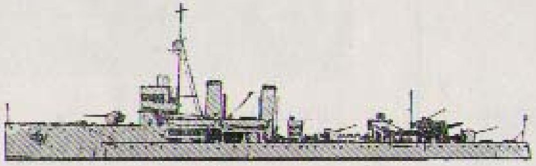
Nautilus.



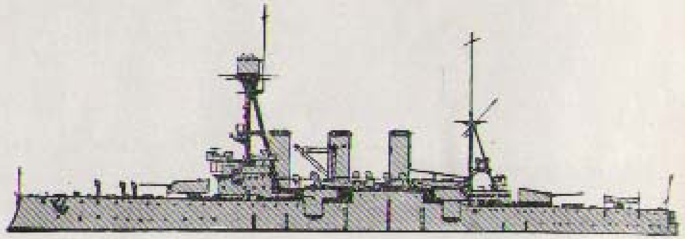
Pleias.



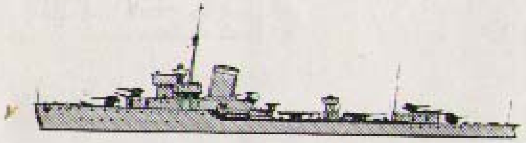
Ares.



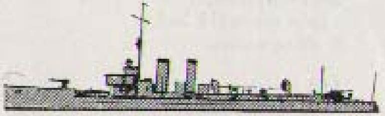
Helle.



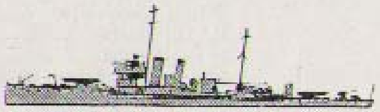
Averoff.



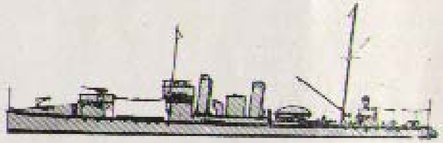
Hydra *class.*



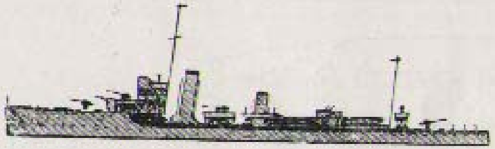
Pergamos *class.*



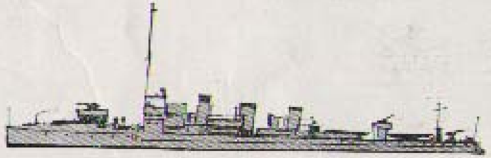
Kios *class.*



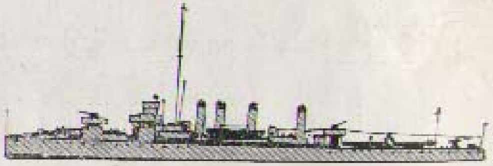
Aigli *class.*



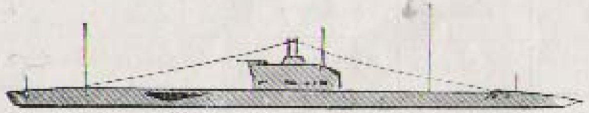
Aetos *class.*



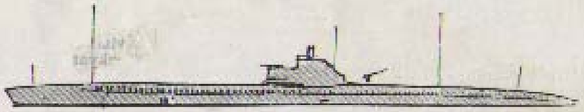
Aspis, Niki.



Thyella.
Sphendoni.

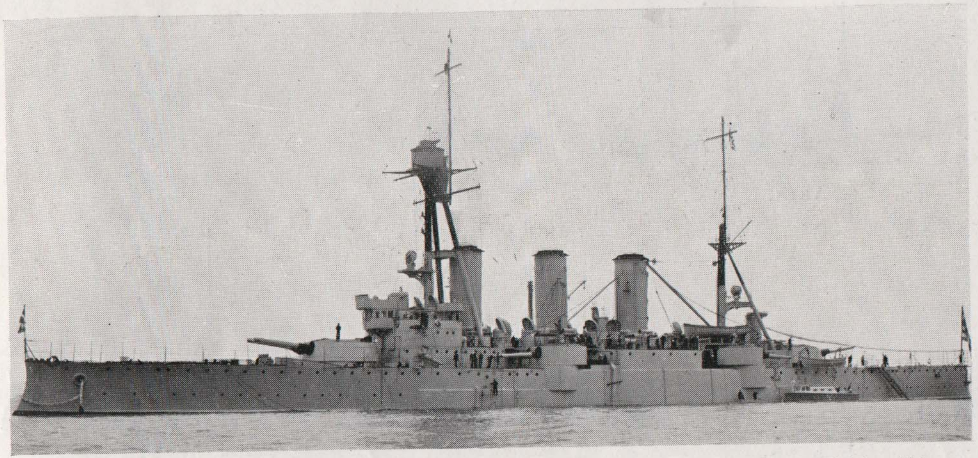


Katsonis *class.*



Nereus *class.*

## Armoured Cruiser.



AVEROFF. 1937, *Fighting Ships*.

### AVEROFF (March, 1910).

Displacement, 9,450 tons. Complement, 670.

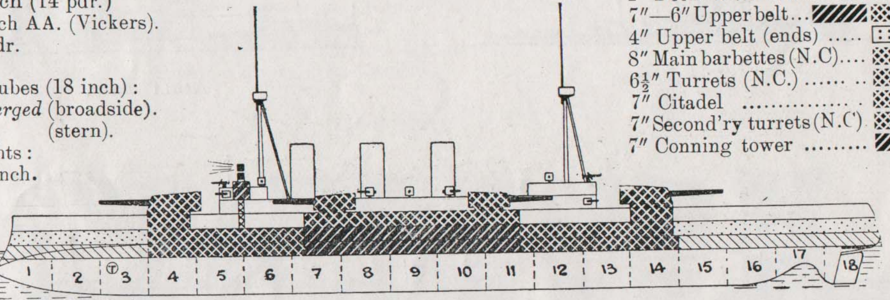
Length (*over all*), 462 feet. Beam, 69 feet. *Maximum* draught, 24⅔ feet.

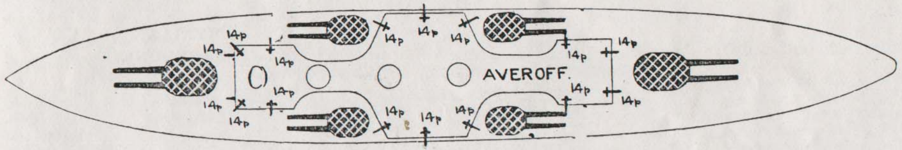
Guns (Armstrong):
- 4—9·2 inch, 45 cal.
- 8—7·5 inch, 45 cal.
- 16—3 inch (14 pdr.)
- 2—3 inch AA. (Vickers).
- 4—3 pdr.
- 2 M.G.

Torpedo tubes (18 inch):
- 2 *submerged* (broadside).
- 1 ,, (stern).

Searchlights:
- 2—36 inch.

Armour (Terni):
- 8″ Belt (amidships) ........ ▨
- 3¼″ Belt (ends) ............ ▧
- 2″ Deck ..............................
- 7″—6″ Upper belt... ▨ ▦
- 4″ Upper belt (ends) ..... ⁘
- 8″ Main barbettes (N.C).... ▦
- 6½″ Turrets (N.C.) ...... .. ▦
- 7″ Citadel .................. . ▦
- 7″ Second'ry turrets (N.C). ▦
- 7″ Conning tower ......... ▨



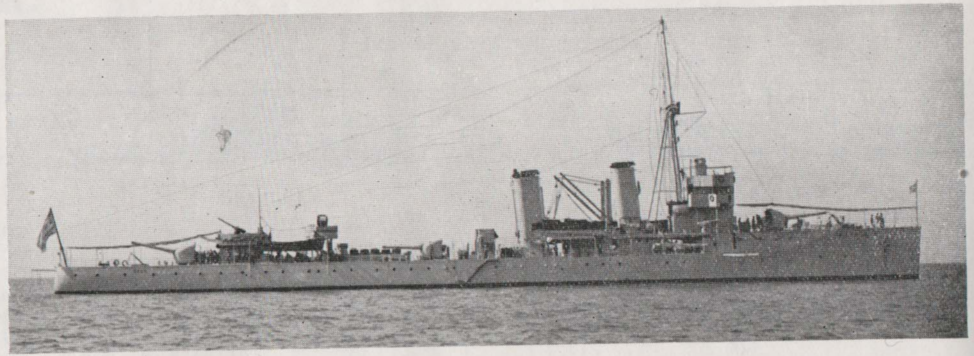


Machinery: 2 sets 4 cylinder triple expansion. 2 screws. Boilers: 22 Belleville. Designed H.P. 19,000=22·5 kts. Trials: 21,500=23·9. Coal: *normal* 660 tons; *maximum* 1500 tons=7125 miles at 10 kts.; 2489 miles at 17¾ kts. Built by Orlando.

*Gunnery Notes.*—All big guns hydraulically controlled. 2—3 inch AA. guns mounted on after superstructure.

*General Notes.*—Cost £950,750. Sister to Italian *Pisa*. Reboilered and completely refitted by Forges et Ch. de la Mediterranée, at La Seyne 1925-27, the alterations effected including the installation of new heavy type tripod foremast with director tower, additional rangefinders and searchlights, AA. guns, new boats, etc., at a cost of £140,000.

## Cruiser Minelayer.



HELLE. 1931 *Photo, Official*.

### HELLE (ex-Chinese *Fei Hung*, May, 1912).

Displacement, 2115 tons. Complement, 232.

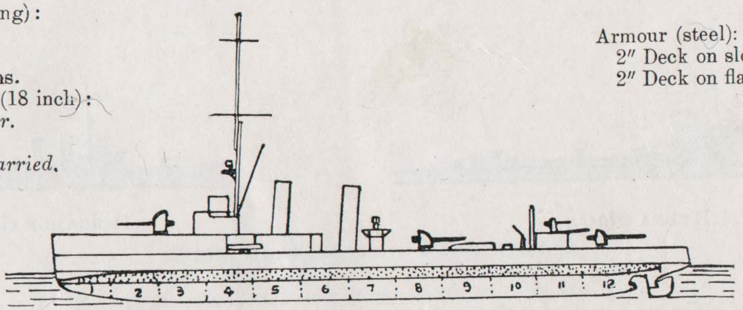
Length (*over all*), 322 feet. Beam, 39 feet. Draught, 14 feet.

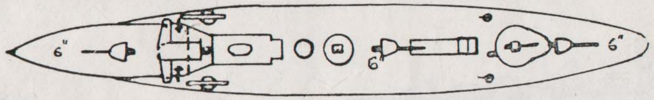
Guns (Armstrong):
- 3—6 inch.
- 4—6 pdr.
- 2—Pompoms.

Torpedo tubes (18 inch):
- 2 *above water*.

**110** *Mines carried.*

Armour (steel):
- 2″ Deck on slopes ... ⁘
- 2″ Deck on flat.........





Machinery: 3 Parsons geared turbines. 3 screws. Boilers: 3 Yarrow. Designed H.P. 7500 = 20·5 kts. Oil: *normal* 600 tons = 7000 miles at 10 kts.

| Name | Builder | Machinery | Laid down | Completed | Trials: 4 hours. | Trials: Full Power. | Boilers | Best recent speed |
|---|---|---|---|---|---|---|---|---|
| *Helle* | N.Y. Shipblg. | N.Y. Shipblg. | 1910 | Nov.,'13 | 7500=20·3 | 8650=21 | Yarrow | |

*General Notes.*—Built as the *Fei Hung* for China. Purchased 1914. Originally fitted with Thornycroft boilers, mixed coal and oil burning. Now converted to oil fuel only. Original turbines have also been replaced, and vessel equipped for mine-laying, 1926-28. This cruiser has been completely transformed by the reduction of her armament, 4 broadside guns being removed and main battery arranged on centre-line, as well as by the removal of the old poop and other heavy weights. The whole of this work was carried out by the F. & Ch. de la Mediterranée, La Seyne, costing £130,000. On fresh trials 21 kts. with full mine load; 21½ kts. without mines.

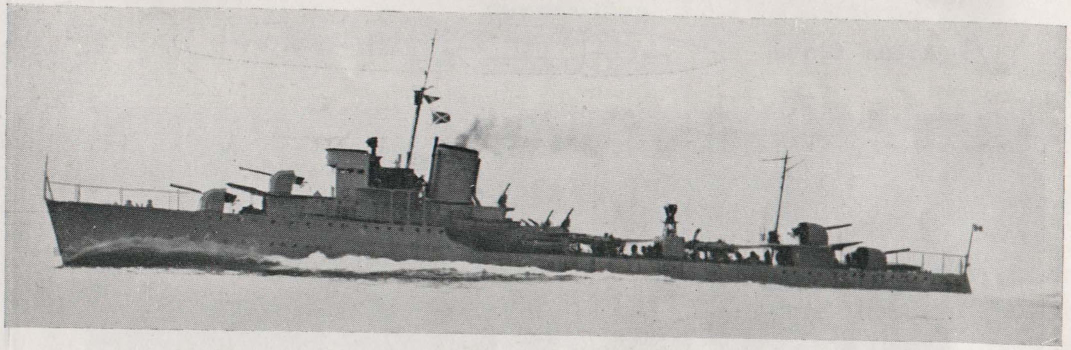
# New Construction.

*Building.*

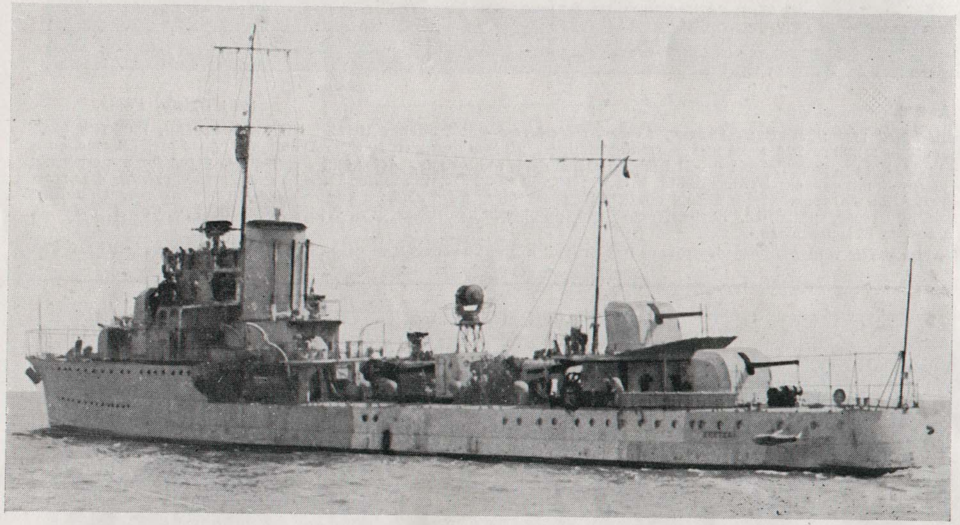
*rrow* type: Laid down Feb., 1937 by Messrs. Yarrow & Co., Ltd. at Scotstoun, Glasgow. Displacement: 1,350 ons. Dimensions: 312 (*pp.*), 320 (*w.l.*) × 33 × 8½ feet (*mean*). Guns: **4**—4·7 inch, several smaller. Tubes: **8**—1 inch. Machinery: Parsons geared turbines. S.H.P.: 34,000 = 36 kts. Boilers: 3 Yarrow 3-drum type.

.—These destroyers are to be delivered towards the end of 1938. 2 more of same type will then be begun in Greek ards.

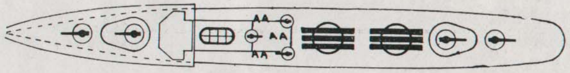
# **4** Hydra class.



HYDRA. 1932 *Photo, Official.*



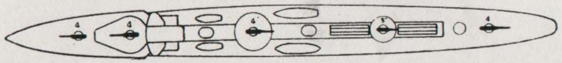
HYDRA. 1932 *Photo, Official.*

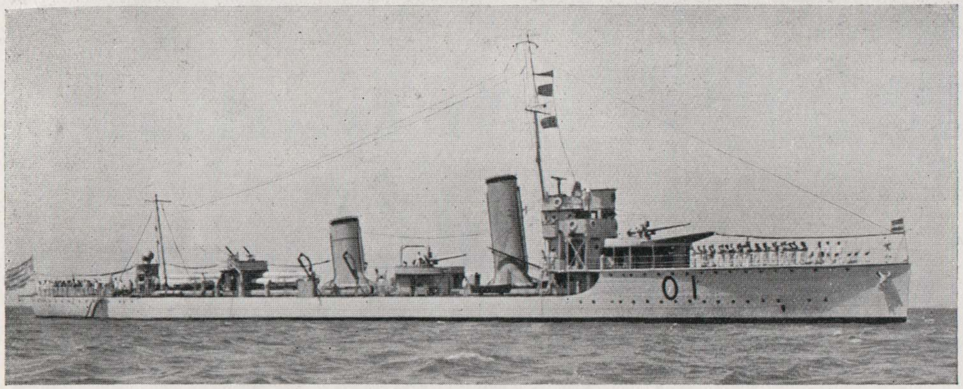


4 *Odero* type: ***Hydra*** (1931) ***Spetsai, Psara*** (1932) ***Kondouriotis*** (1931). All built at Spezia.
Displacement: 1350 tons, 2050 tons *deep load.*
Dimensions: 303 × 32 × 12½ feet full load.
Armament: **4**—4·7 inch. **3**—40 m/m AA., **6**—20·8 inch tubes. *Hydra* and *Kondouriotis* fitted to carry 40 mines.
Machinery: 2 sets Parsons geared turbines 3 Express type boilers. S.H.P. 40,000 = 39·5 kts. Oil: 630 tons.
Cost about £272,000 each. Radius 5,800 miles at 20 kts. Complement, 156.

| | | | | | |
|---|---|---|---|---|---|
| *Trials:* | 4 hrs. | *Hydra* 39·9. | *Spetsai* 40·9. | *Kondouriotis* 40·75 kts. | *Psara* 40·13 kts. |
| | Max. | „ 41·7. | „ 41·5. | „ 41·8 kts. | „ 41·10 kts. |

## 4 Aetos Class.



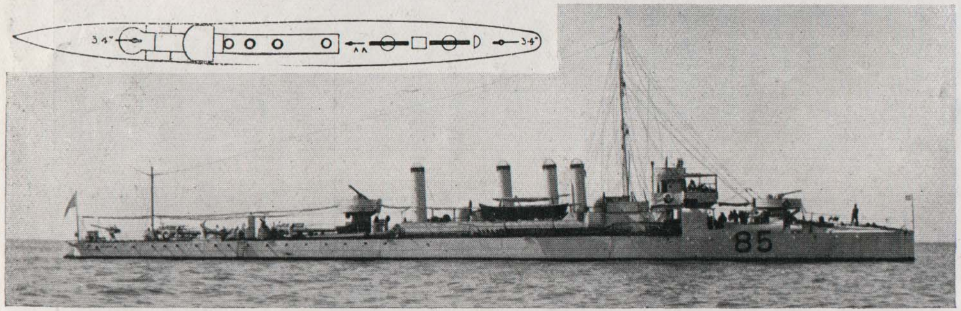


AETOS. 1931 *Official Photo.*

4 *Cammell-Laird* type: **Aetos, Ierax, Leon, Panther** (all launched 1911). 1013 tons *normal*, 1300 *full load*. Dimensions: 293 × 27¾ × 8½ feet, *normal* draught; *full load* draught, 10 feet. Armament: **4**—4 inch (Bethlehem), **2**—2 pdr. Pom-poms. Tubes: **6**—21 inch, in triple deck mountings. *Aetos* and *Panther* are fitted for mine-laying, and carry 40 mines each. 3 searchlights. S.H.P.: 19,750 = 32 kts. Combined Parsons and Curtis turbines. 4 Yarrow boilers. Oil: 260 tons. These were 4 boats, *San Luis, Santa Fé, Tucuman* and *Santiago*, built for Argentina. Purchased by Greece, Oct., 1912. Reconstructed and re-boilered by Messrs. J. S. White & Co., Ltd., E. Cowes, 1924–25, at a cost of £110,000 each.

*General Notes.*—The refit of these destroyers has proved a great success, the original speed being exceeded by 2 kts.

## 2 Thyella Class.

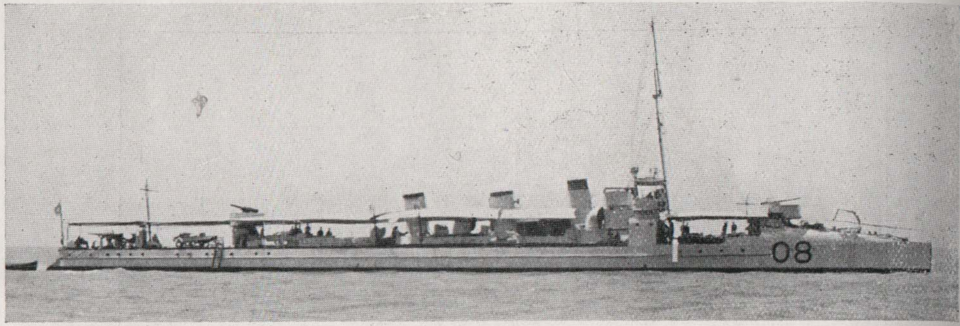


THYELLA. 1931 *Official Photo.*

2 *Yarrow* type: **Thyella, Sphendoni** (1906-07). 305 tons. Dimensions: 220¼ × 20½ × 6 feet, *mean* draught; *max.* draught, 9 feet. Armament: **2**—3·4 inch Krupp, **1**—2·7 inch AA. **2** tubes (18 inch). Speed: 30 kts. Coal: 80 tons. Endurance: 1140 to 1250 miles at 15 kts. Complement, 70.

*Notes.*—Both refitted 1926–28. Present speed 29 kts. Full load displacement is 390 tons.

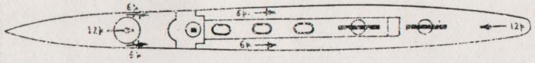
## 2 Niki Class.



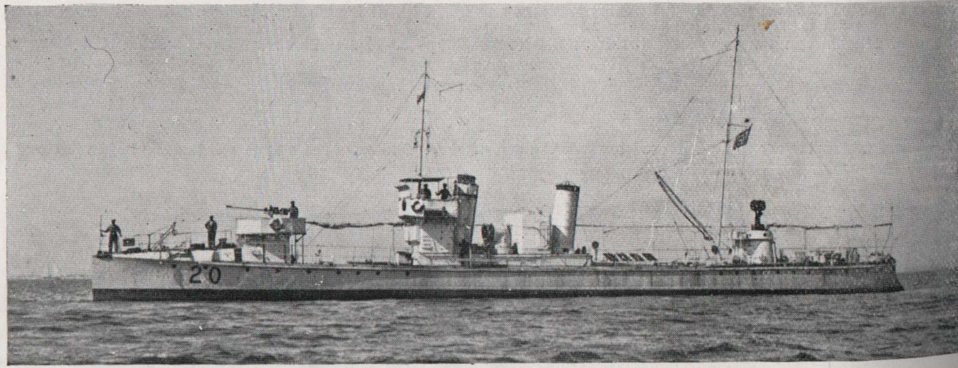
NIKI 1931 *Official Photo.*

2 *Vulkan Stettin* type: **Aspis** (1906), **Niki** (1905). 275 tons. Dimensions: 220¼ × 20½ × 6 feet, *mean* draught *max.* draught, 9 feet. H.P. 6700 = 30 kts. Armament: **2**—12 pdr., **4**—6 pdr. **2** tubes (21 inch). Coal: 9 tons. Complement, 70. Endurance: 1140 to 1250 miles at 15 kts.

*Note.*—Both underwent a thorough refit, 1928–29. Present speed 29 kts.



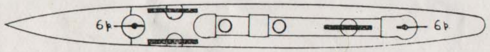
## 4 Aigli Class.



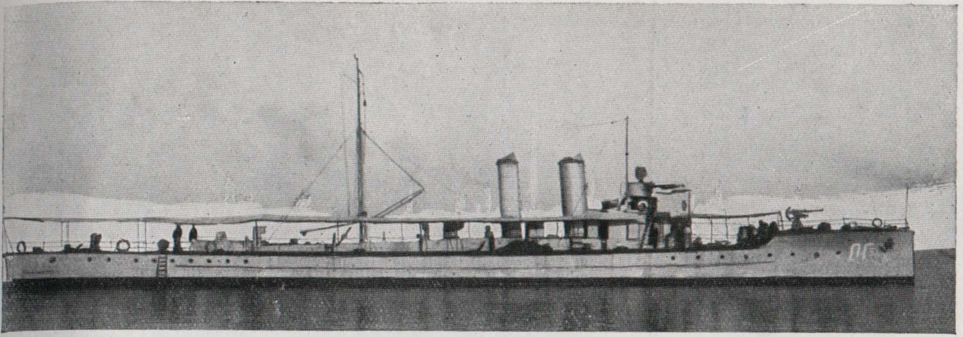
AIGLI. 1931 *Official Photo.*

4 *Vulkan* type: **Aigli, Alkyone, Arethousa, Doris,** (all launched 1913). 145 tons. Dimensions: 147⅔ × 9⅓ × 4 feet. Armament: **2**—6 pdr. Bethlehem. **2**—18 inch tubes. I.H.P. 2600=25 kts. (about 24 kts. best speed now). Trials: *Aigli* 26·2, *Doris* 25·7. Coal: 25 tons.

*Note.*—These four boats were completely refitted, 1926–30.



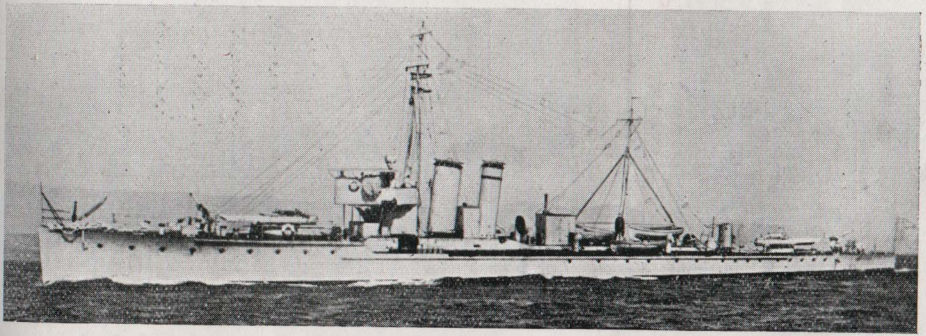
(Should show only one Tube in centre line forward).



PERGAMOS. (Now has tall foremast and stump mainmast.) 1922 *Photo, Official.*

*Ex-Austrian* boats : **Pergamos** (ex-95 *F*), **Prousa** (ex-92 *F*). Built by Ganz-Danubius Yard, Fiume (1914-1915). 241 tons. Dimensions : 188¼ × 19 × 4·9 feet *max.* draught. H.P. 5000= 28 kts. 2 turbines. 2 Yarrow boilers (1 coal and 1 oil). Fuel : 21 tons coal + 31 tons oil. Guns : 1—11 pdr. Skoda (*Pergamos* has 2). 2—18 inch Tubes. Complement, 25.

*ote.*—These boats underwent a general refit at Piraeus, 1926. Original speed exceeded.



KYZIKOS. 1932 *Official Photo.*

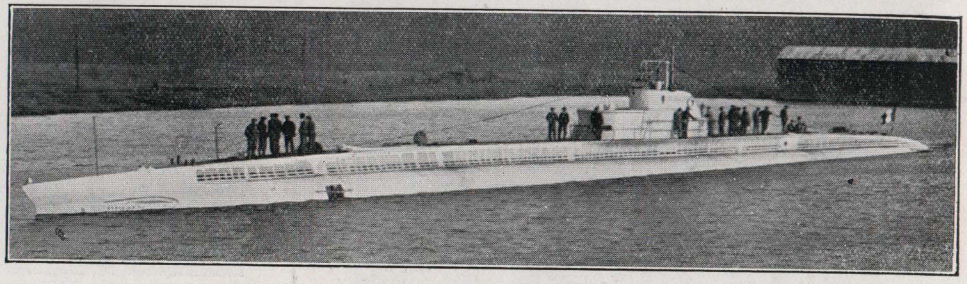
*Ex-Austrian* boats : **Kyzikos** (ex-98 *M*), **Kios** (ex-99 *M*), **Kidonia** (ex-100 *M*). Built at Monfalcone (1914). 241 tons. Dimensions : 197 × 18 × 4·9 feet *max.* draught. Machinery details as *Pergamos* type, above. Armament ; 1—11 pdr. Skoda. 2—18 inch Tubes.

*ote* —All three boats underwent a general refit at Piraeus 1926. Original speed exceeded.

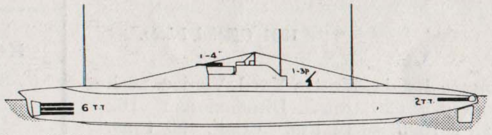
## Submarines.

*Note* :—2 submarines are to be ordered under 1937 Programme.

### 4 Glaukos Class.

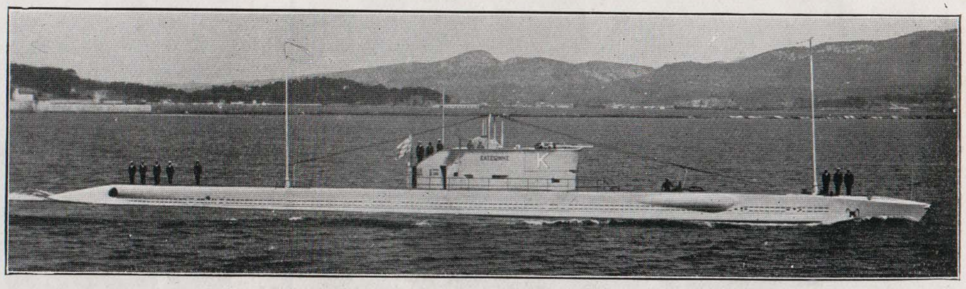


GLAUKOS. 1929 *Photo, by favour of M. Henri le Masson.*

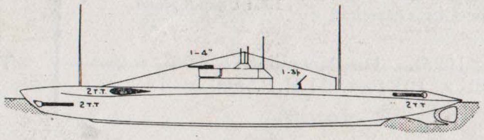


4 *Simonot* type. **Nereus** (Dec., 1927), **Proteus** (Oct. 24th, 1927), **Triton** (April 4th, 1928), all built by At. & Ch. de la Loire, at Nantes, **Glaukos** (1928), by Chantiers Navals Français, at Blainville. Displacement : 700/930 tons (metric). Dimensions : 225 (*p.p.*) × 18·8 × 13·7 feet. Machinery (supplied by At. & Ch. de la Loire) : On *surface*, 2 sets 2-cycle Sulzer-Diesels, totalling 1420 B.H.P. for 14 kts. : *submerged* 1200 B.H.P. for 9¼ kts. Oil fuel : 105 tons. Endurance on *surface : normal* 1,500 miles, *maximum* 4,000 miles ; both at 10 kts. When *submerged*, 100 miles at 5 kts. Armament : **1**—4 inch, **1**—3 pdr. AA., **6**—21 inch internal bow tubes, **2**—21 inch internal stern tubes. Stowage for 10 torpedoes, 150 rounds of 4 inch ammunition. Complement, 41. *Maximum* depth of submergence : 45 fathoms. Approximate cost £119,000 each.

### 2 Katsonis Class.



KATSONIS. 1929 *Photo, M. Bar, Toulon.*

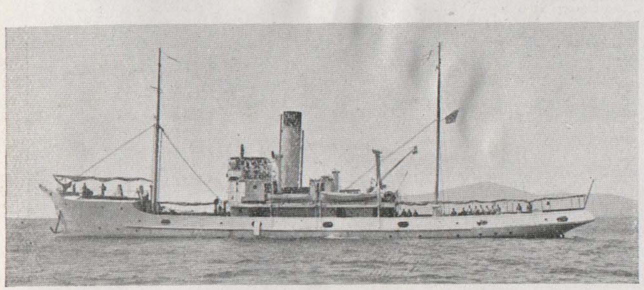


2 *Schneider-Laubeuf* type. **Katsonis** (20 March, 1926), by Ch. de la Gironde, at Bordeaux ; **Papanicolis** (Nov. 1926), by At. & Ch. de la Loire, at Nantes. Displacement : 576/775 tons. Dimensions : 204½ × (*p.p.*) 17½ × 11 feet. On *surface*, 2 sets of 2-cycle Machinery : Schneider-Carels Diesels, totalling 1300 B.H.P. for 14 kts. *Submerged*, 1000 B.H.P. for 9½ kts. Endurance, on *surface* : *normal* 1500 miles, *maximum* 3500 miles, both at 10 kts : when *submerged*, 100 miles at 5 kts. Armament : **1**—4 inch, **1**—3 pdr. AA., **2**—21 inch internal bow tubes, **2**—21 inch external bow tubes, **2**—21 inch external stern tubes. Stowage for 7 torpedoes, 100 rounds of 4 inch ammunition. Complement, 39. *Maximum* depth of submergence : 45 fathoms.

*Identification Note.*—Submarines are differentiated by letters painted on side of conning tower.

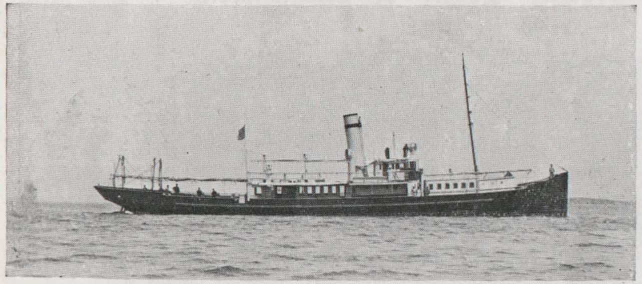
## Mine Layers.

*Note.*—In peace time these vessels are employed as follows: *Pleias* as a Lighthouse Tender, the other three as "Communication Boats" (Despatch Vessels).



PLEIAS. 1931 *Official Photo.*

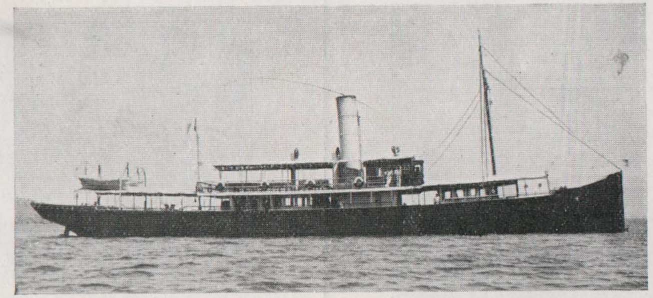
**PLEIAS** (Soc. Italiana Ernesto Breda, Mestre Yard, Venice, 28th April, 1926). Displacement: 520 tons. Dimensions: 162 × 27 × 12½ feet. I.H.P. 1000 = 14 kts. Coal: 90 tons. Carries 50 mines.



1931 *Official photo.*

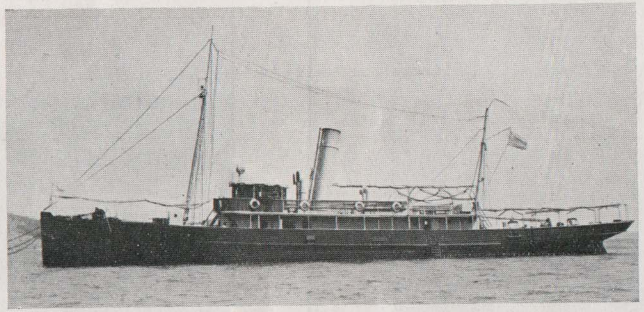
**PARALOS** (Rotterdam, 1925). Displacement: 395 tons. Dimensions: 150 × 22 × 10½ feet. I.H.P. 550 = 13 kts. Coal: 35 tons. Carries 52 mines.

## Mine Layers—*continued.*



1931 *Official photo.*

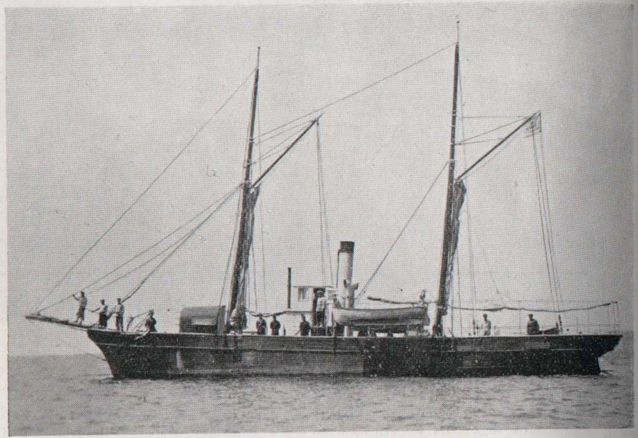
**KORGIALENIOS** (Rotterdam, 1916). Displacement: 380 tons. Dimensions: 150 × 21½ × 10 feet (depth). I.H.P. 550 = 13½ kts. Coal: 35 tons. Carries 50 mines.



1931 *Official photo.*

**TENEDOS** (Glasgow, 1906). Displacement: 460 tons. Dimensions: 142 × 24 × 10 feet (*mean* draught). I.H.P. 560 = 13 kts. Coal: 40 tons. Carries 40 mines.

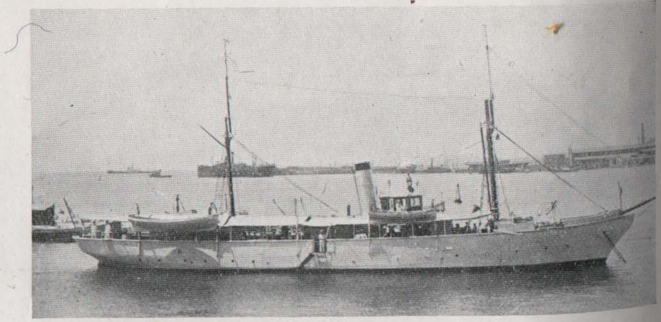
## Old Gunboats.



KISSA 1931 *Official Photo.*

**KISSA, KICHLE** (Blackwall, 1884). 86 tons. Dimensions: 76 × 16 × 7 feet. I.H.P. 162 = 10 kts. Coal: 20 tons. Guns: Nil (*Kissa* now used as a Lighthouse Tender).

## Surveying Vessel.

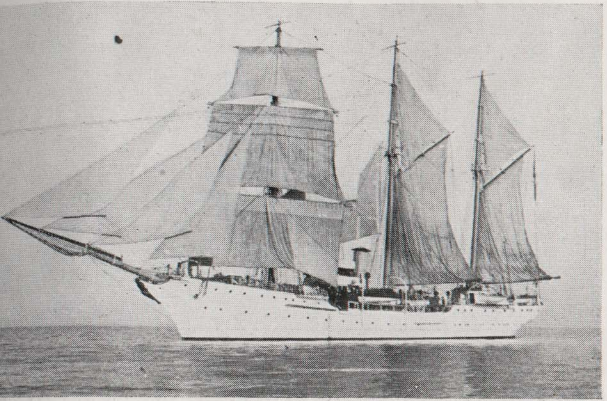


1931 *Official Photo.*

**NAUTILOS** (Dumbarton, 1884, Rebuilt 1895-7). 404 tons. Dimensions: 131¼ (*p.p.*) × 24⅓ × 11 feet. Guns: Nil. H.P. 400 = 11 kts. (8 kts. best speed now). Coal: 55 tons. Complement, 60.

## Training Ship.

баркентина

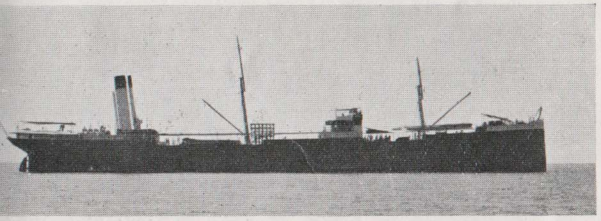


RES. 1932 *Photo, Official.*

**ES** (Forges et Chantiers de la Méditerranée, La Seyne, Jan. 28th, 1927). Steel Barquentine. Displacement: 2200 tons. Dimensions: 208 (*p.p.*) × 39½ × 18 feet. Guns: 4—3 inch. Auxiliary steam engine (reciprocating) I.H.P. 1000 = 10 kts. 2 oil-fired Babcock & Wilcox boilers. Fitted with lecture rooms, workshops and accommodation for 100 Naval Cadets and 150 Boys. Total complement: 419. Carries an exceptionally full equipment of boats for training purposes.

—On trials, H.P. 1144 = 11·38 kts.

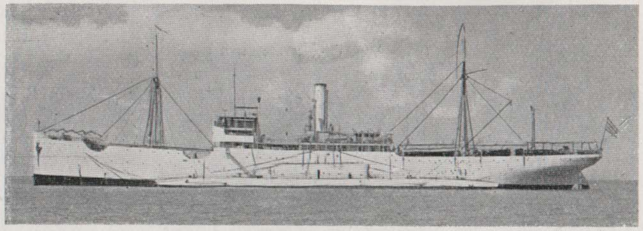
## Oil Tanker.



1931 *Official Photo.*

**METHEUS** (Newcastle, 1889.) 3193 tons, *gross* tonnage. imensions: 318½ × 42 × 29½ feet depth. I.H.P. 1150 = 10 kts. arries 4175 tons of oil fuel.

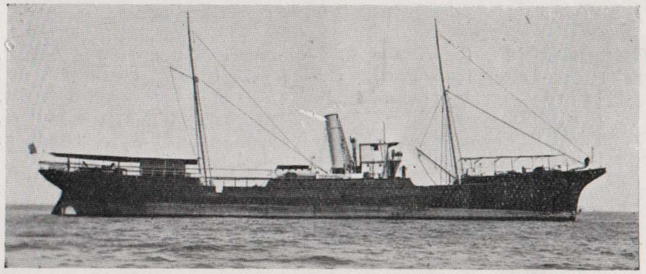
## Fleet Repair and Submarine Depôt Ship.



1931 *Official Photo.*

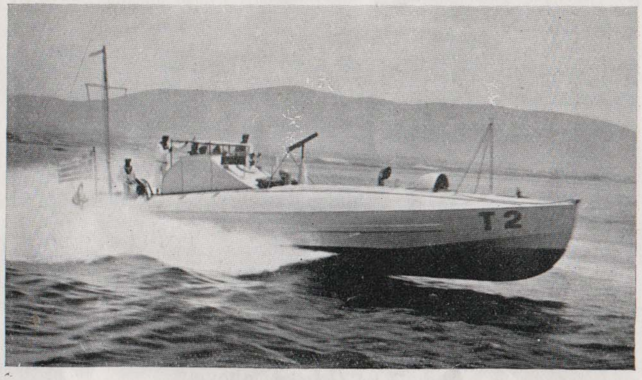
**HIFAISTOS** (ex-*Khios*) (ex-German Cargo Ship *Marie Reppel*, Rostock, 1920). *Gross* tonnage, 4549. Dimensions: 360⅓ × 50 × 23 feet. I.H.P. 2500 = 11½ kts. Guns: 4—4 inch AA. Converted into a Repair Ship by Messrs. Palmers, Jarrow-on-Tyne, 1925. Fitted with up-to-date workshops and plant.

## S/M Tender and Water Carrier.

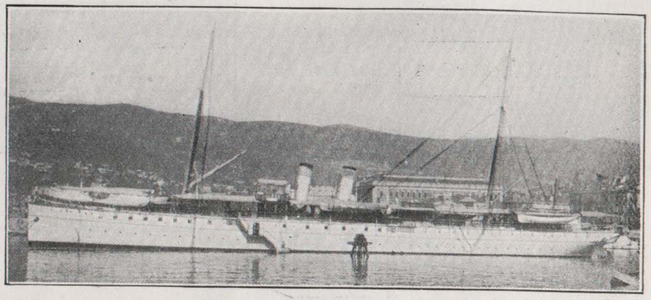


1931 *Official Photo.*

**AURA** (Greenock, 1894, reconstructed, 1918). Displacement, 1221 tons. Dimensions: 210 × 29 × 14 feet. I.H.P. 695 = 12 kts. Coal: 110 tons. Water capacity: 750 tons.

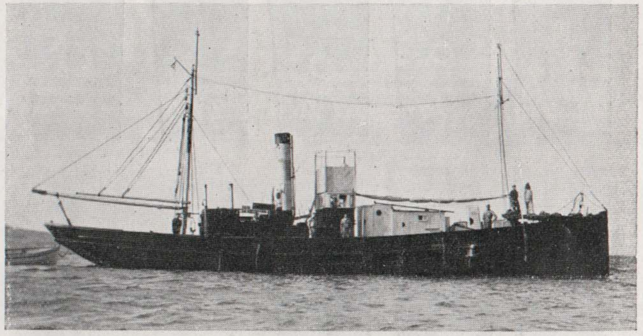


## Submarine Depôt Ship.



**AMPHITRITI** (Birkenhead, 1876.) 1172 tons displacement. Dimensions: 206 × 30⅓ × 16½ feet depth. I.H.P. 1630 = 13½ kts. Coal: 160 tons. Originally built as troopship. Rebuilt 1885 as Royal Yacht and adapted as Hospital Ship, 1918. Converted 1934 to S/M Depôt Ship.

## Mine Sweeping Trawlers.



1931 *Official Photo.*

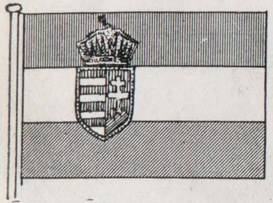
**A 1, A 2** (Leith, 1910). Displacement, 140 tons. Dimensions: 85 × 18 × 6½ feet draught. I.H.P. 200 = 10 kts. Guns: 1—3 inch Krupp, 1 M.G. Purchased from British Admiralty, 1918.

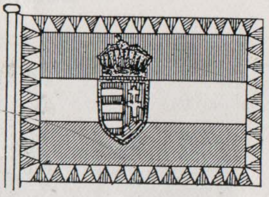
## Motor Torpedo Boats.

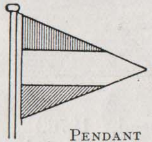
**T 1, T 2.** Thornycroft 55 ft. type (1929). Two motors each 375 H.P. = 37 kts. (40 kts. reached on trials.) 2 Lewis guns, 2—18 inch torpedoes, 4 D.C.

# HUNGARY.

## (Danube Flotilla.)


Ensign


Flag Officer


Pendant

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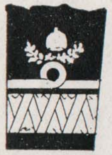
*Principal Base.*—Budapest.

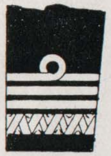
Under Law XIV of 1922, the Royal Hungarian Riverguard (M. Kir. Folyamorseg) was established for police purposes on the Danube, under the control of the Ministry of the Interior.

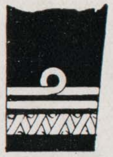
*Colour of Ships:* Khaki, and Green below waterline.

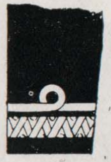
*Inspector-General, Riverguard:* Rear-Admiral O. R. Wulff.

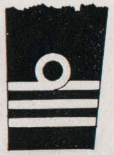
### Insignia of Rank.

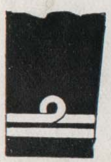

Vezérkapitany. (*Rear-Admiral.*)

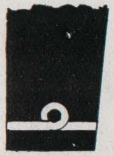

Fökapitany. (*Captain, senior.*)

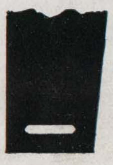

1 Törzs-kapitany. (*Captain, junior.*)


2 Törzs-kapitany. (*Commander.*)


Kapitany. (*Lieut.-Commander.*)


Föhajónagy. (*Lieut.*)


Hajónagy. (*Sub-Lieut.*)

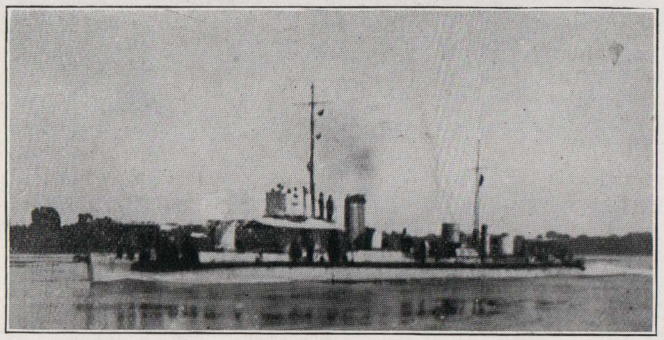

Gyakornok. (*Midshipman.*)

Without curl, and with colour between stripes :—
*Surgeons* : Black velvet.
*Engineers* : Cherry-coloured cloth.
*Constructors* : Cherry coloured velvet.
*Paymasters* : Red cloth.
*Musical Directors* : Violet cloth.

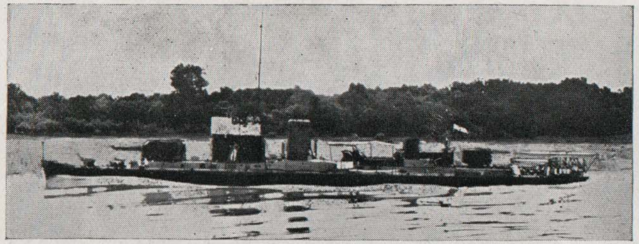
*Uniform Cap.*
Badge is a golden anchor surrounded by a laurel wreath and surmounted by the Holy Crown of Hungary.

## 4 River Patrol Boats.

(Ex-Austro-Hungarian.)

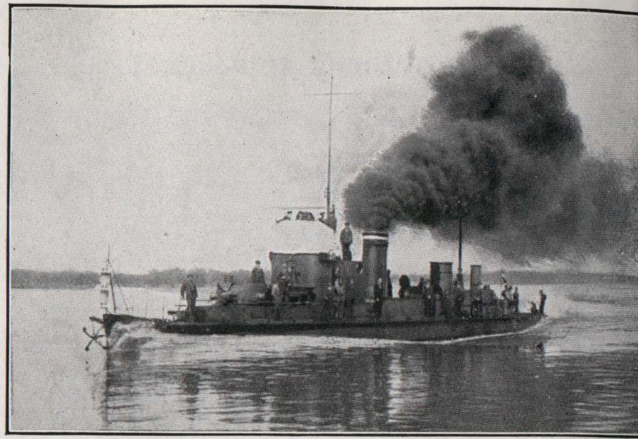

Debrecen. (Masts now of equal height.) 1925 *Official Photo.*

**DEBRECEN** (ex-*Komaron*, ex-Austro-Hungarian *Lachs*), (Ganz-Danubius Yard, Budapest, 1918). Displacement: 140 tons. Dimensions: $149\frac{1}{4}\times19\frac{1}{2}\times3\frac{1}{4}$ feet *mean* draught. H.P. 1400 = 15 kts. A.E.G. turbines. 2 Yarrow boilers. Tunnel screws. Guns: 2—3 inch, 2 M.G. 1 S.L. Oil fuel: 18 tons Complement, 44. Refitted 1924.


1933 *Photo, Official.*

**GYOR** (ex-Austro-Hungarian *Stöhr*). (Ganz-Danubius Yard, Budapest, 1918). Refitted 1928.

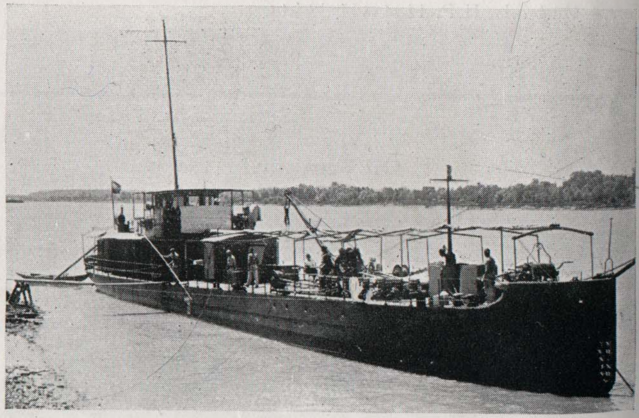
Details as *Debrecen* above.


Szeged. 1925 *Official Photo.*

**SZEGED** (ex-*Bregainica*, ex-Austro-Hungarian *Wels*, 1915

**KECSKEMÉT** (ex-Austro-Hungarian *Viza*, 1916). Bot built at Ganz-Danubius Yard, Budapest. Displacement 133 tons. Dimensions: $144\frac{1}{2}\times16\frac{1}{2}\times3\frac{1}{4}$ feet *mean* draugh H.P. 1100 = 15 kts. A.E.G. turbines. 2 Yarrow boiler Tunnel screws. Guns: 4—3 inch, 2 M.G. 1 S.L. Oil fuel 18 tons. Complement, 44. *Szeged* refitted 1921, *Kecskemé* 1923.

## Depôt Ship.


1934 *Photo, Official.*

**CSOBÁNC** (Ganz-Danubius Yard, Budapest, 1928). 300 tons. Dimensions: $132\times18\times4\frac{1}{2}$ feet. H.P. 180=8 kts. 2 Diesels. Tunnel screws. Oil: 8 tons. Complement, 18.

In addition to the above, there are a number of small Moto Launches and Guard Boats.

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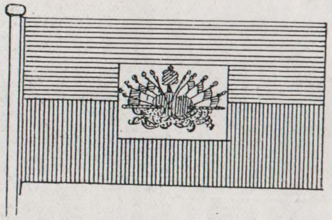
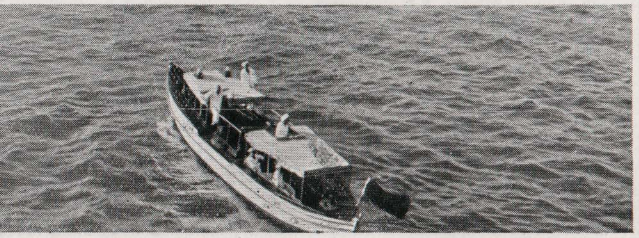
# HAITI.



▥ Red
☐ White
▤ Blue

Ensign

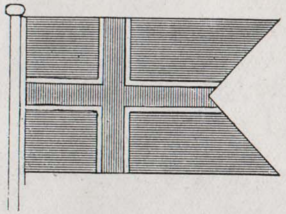
### Patrol Vessels.



2. 1937, *W. H. Davis, Esq.*

. 1 and 2. Employed on Coastguard Service. Particulars wanted.

# ICELAND.

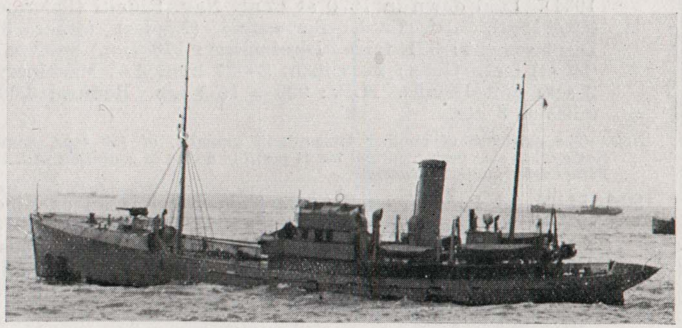


▥ Red
☐ White
▤ Blue

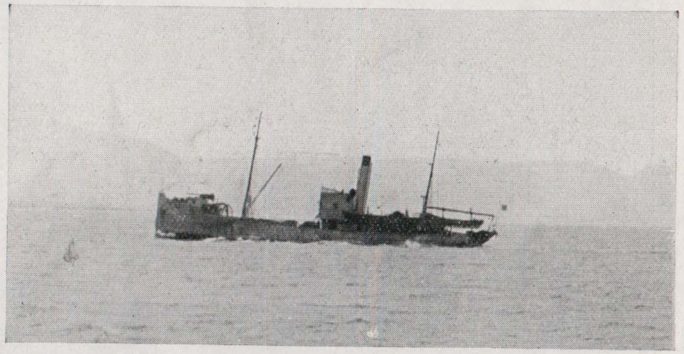
National Flag.

### Fishery Protection Vessels.

(*All photos by courtesy of Commander R. Steen Steensen, R.D.N.*)



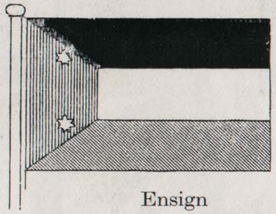
**ÆGIR** (1929). Built by Burmeister & Wain, Copenhagen. 500 tons. Complement : 25. Guns : **1**—57 mm. Diesel engines. Speed, 14 kts.



**THOR** (ex-German trawler *Senator Schaffer*). Built by Wollheim, Stettin, 1922, and purchased 1931. 300 tons. Complement : 18. Guns : **1**—57 mm. I.H.P. 450 = 10 kts.

**VIFIL.** Motor vessel of 150 tons. Guns : **1**—47 mm. Speed, 8·5 kts

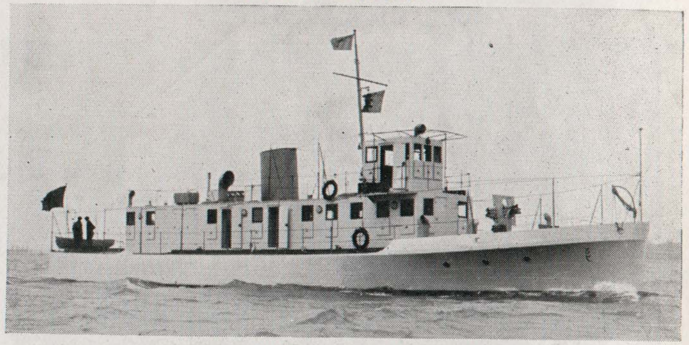
# IRAQ



■ Black
☐ White
▥ Red
▨ Green

Ensign

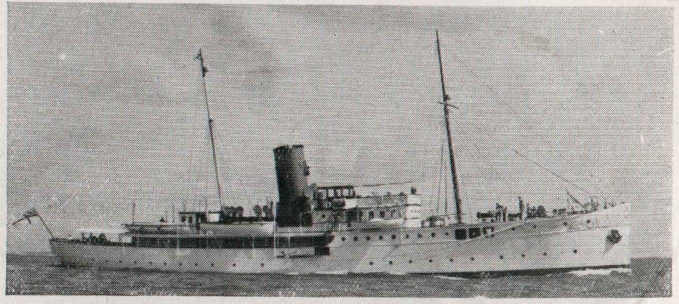
### Patrol Vessels.



1937, *courtesy Messrs. Thornycroft (builders).*

4 *Thornycroft* type : Nos. 1, 2, 3, 4 (1937). 67 tons. 100 × 17 × 3 feet (*mean* draught). Guns : **1**—3·7 inch howitzer, **4** M.G., **2**—3 inch trench mortars. 2 Thornycroft Diesels of 6-cylinder type. H.P. : 280 = 12 kts. Protected by bullet-proof plating. First launched April 16, 1937 ; all delivered by summer.

### Royal Yacht.



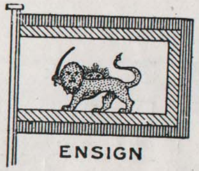
1937, *courtesy Messrs. G. L. Watson (designers).*

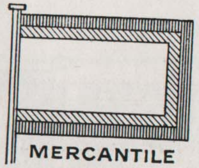
(Ex-*Sans Peur*, ex-*Restless*). (Clydebank, 1923). Displacement : 1,025 tons. Dimensions : 186 × 29½ × — feet. Machinery : Triple expansion. 2 shafts. I.H.P. : 850 = 13 kts. 1 oil-fired boiler.

### Tug.

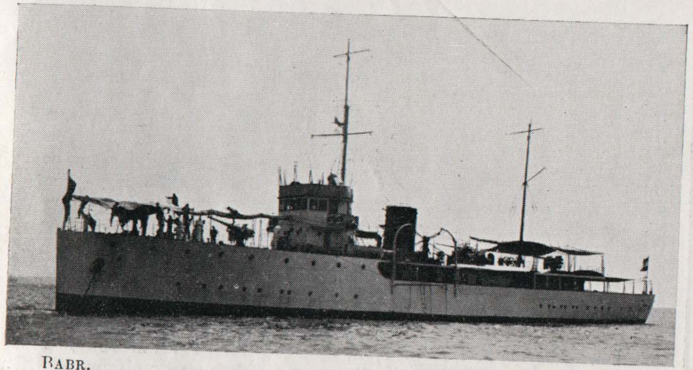
**ALARM** (ex-*St. Ewe*). (Murdoch & Murray, 1919). Displacement : 820 tons. Dimensions : 135 × 30 × 14½ feet. I.H.P. : 1,200 = 12 kts. Coal : 240 tons. (May have been converted to oil firing.)

# IRAN (PERSIA).

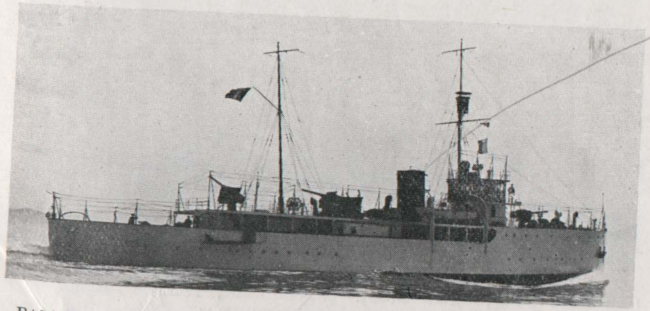

ENSIGN


MERCANTILE

## Gunboats.


BABR.

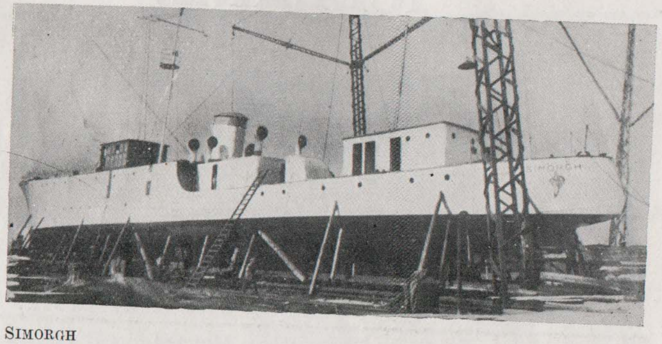
Added 1936.


PALANG.

1932 *Photo, favour of the "Motorship."*

**BABR** (Aug., 1931), **PALANG** (Nov., 1931). Built by Cantieri Navali Riuniti, Palermo. Displacement: 950 tons. Dimensions: $204\frac{3}{4}$ (*pp.*) × $29\frac{1}{2}$ × 10 feet. Guns: **3**—4 inch. 2 M.G. Machinery: 2 sets Fiat Diesels. Oil fuel: 120 tons. H.P.: 1,900 = 15 kts. Complement: 85.

## Gunboats—*continued.*


SIMORGH

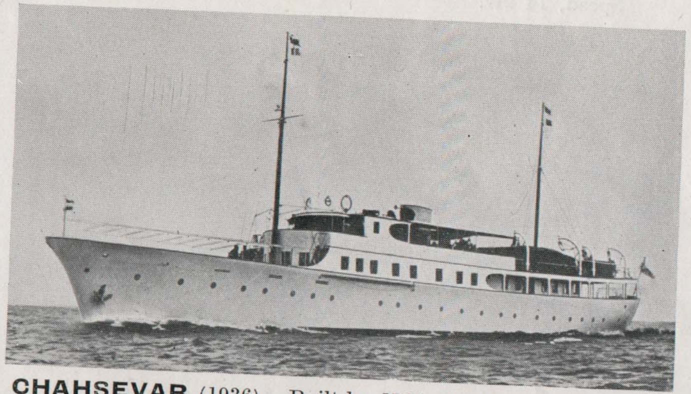
1931 *Photo.*

**CHAROKH** (July 26, 1931), **SIMORGH** (August 3, 1931), **KARKAS** (August 3, 1931), **CHAHBAAZ** (August 3, 1931). Laid down in 1930 at Cant. Nav. Riuniti (Palermo) (*Chahbaaz*), and Cant. Partenopei (Naples) (other 3). Displacement: 331 tons. Dimensions: 170 (*pp.*) × 22 × 6 (*mean*) feet. Guns: **2**—3 inch, **2**—37 mm. AA. Machinery: 2 sets Fiat Diesels. H.P.: 900 = 15·5 kts. Radius: 3,000 miles at 8 kts.

*Note.*—The existence of another Italian-built gunboat, of 700 tons, named *Homay*, has also been reported, but is possibly a case of confusion with the Paraguayan gunboat *Humayta*.

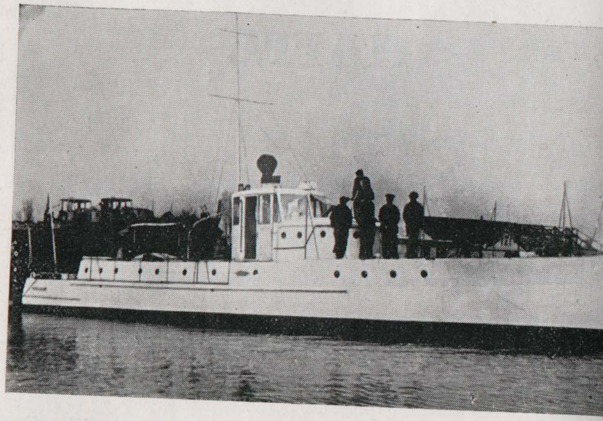
**SHAHIN** (ex-*Pahlavi*, ex-*Fatiya*). This vessel is an ex-Minesweeper of German F.M. type, built 1917, and purchased 1923, for £4,000. Displacement: (*normal*) 170 tons. Dimensions: $132\frac{1}{2}$ (*w.l.*) × $19\frac{2}{3}$ × 4 feet *normal* draught. Guns: **1**—3 pdr. Machinery: 2 sets triple expansion. Oil fuel: 35 tons. I.H.P.: 800 = 16 kts. (after alterations). Complement: 44.

## Imperial Yacht. (*Caspian Sea*)



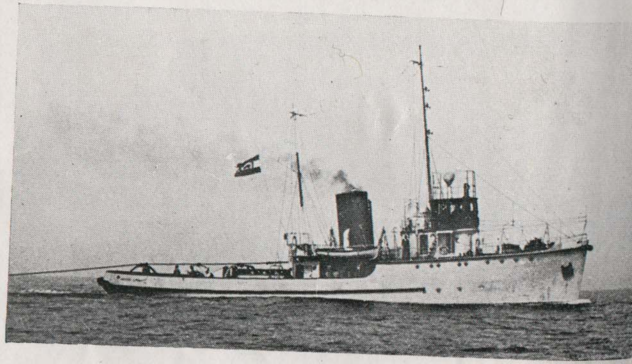
**CHAHSEVAR** (1936). Built by N.V. Boele's Scheepwerven, Bolnes, Netherlands. 530 tons. Dimensions: $176\frac{1}{2}$ × $25\frac{1}{3}$ × $10\frac{1}{2}$ feet. 2 sets Diesels by Gebr. Stork, of Hengelo. B.H.P.: 1,300 = 15 kts.

## Patrol Boats.



**AZERBAIJAN, GEHLANI, MAZENDERAN,** others. Built in Italy, 1935-36. 28 tons. Length, 68

## Tug.



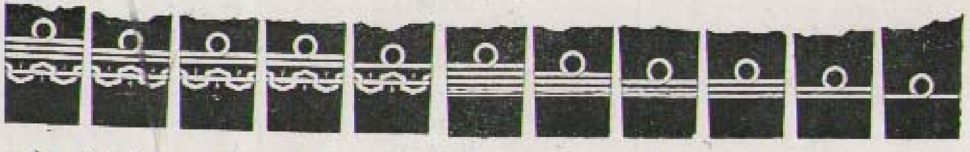
**NEYROU** (Cant. Nav. Riuniti, Ancona, Dec. 9, 1934). Particu wanted.

# ITALY

## Uniforms.

*Note.*—A five pointed silver star (or gold in the case of flag officers) is worn on lapel of coat.

INSIGNIA OF RANK ON SLEEVES.


Ammiraglio di Armata.
Ammiraglio di Squadra designato di Armata*
Ammiraglio di Squadra.
Ammiraglio di Divisione.
Contr-ammiraglio.
Capitano di Vascello.
Capitano di Fregata.
Capitano di Corvetta.
Tenente di Vascello.
Sottotenente di Vascello.
Guardia-marina.
British equivalent.
Admiral.
Vice-Admiral.
Rear-Admiral.
Captain.
Commander.
Lieut. Com.
Lieut.
Sub-Lieut.
Midshipman.

*Acting rank.

The rank of Grande Ammiraglio (four stripes) equivalent to Admiral of the Fleet can only be conferred for special merit on flag officers who have commanded fleets in time of war.

Lesser ranks are: Aspirante; Allievo dell' Accademia Navale (*Naval Cadet*).

Other branches distinguished by following Colours: Armi Navali (*Ordnance Constructors*), yellow-brown; Genio Navale (*Naval Constructors and Engineers*), dark purple; Sanitario (*Doctors*), blue; Commissariato (*Paymasters*), red; Chemists, green; Harbour Masters, grey-green.

*Note.*—All officers under arms on duty wear a blue sash over right shoulder, ending in a blue knot at left hip; worn with belt. Officers on staff duty wear it on opposite shoulder, with or without belt. Tropical white tunic has insignia of rank on shoulder straps, with stars to correspond with number of stripes. Senior lieutenants wear a piece of gold under the stars of shoulder strap.

| | | | |
|---|---|---|---|
| *Navy Estimates* | 1933-34. | 1,397,222,277 lire Italian | Excluding Supplementary Credits. |
| | 1934-35. | 1,189,850,295 ,, ,, | |
| | 1935-36. | 1,304,881,000 ,, ,, | |
| | 1936-37. | 1,609,891,000 ,, ,, | |

*Total Personnel:* Officers, 3,336. Men, 52,500. (Being increased to 60,000)

*Minister of Marine:* S. E. Benito Mussolini.

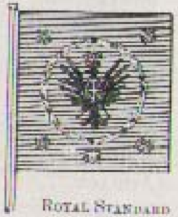
*Secretary of Marine Ministry:* Ammiraglio di Armata Domenico Cavagnari.

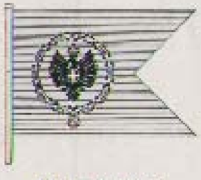
*Deputy Chief of Naval Staff:* Ammiraglio di Squadra Wladimiro Pini.

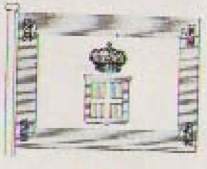
*Naval Attaché, London:* Capitano di Vascello Bruno Brivonesi.

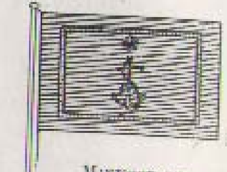
*Asst. Naval Attaché:* Capitano del Genio Navale Ernesto Trenchi.

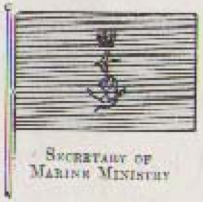
## Flags.

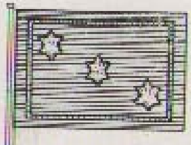

ROYAL STANDARD

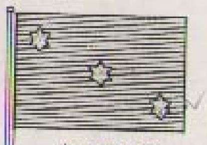

ROYAL PRINCES' Broad Pendant

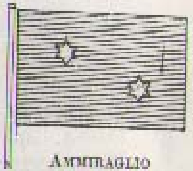

VICEROY

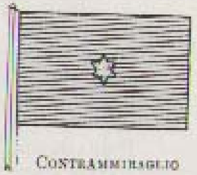

MINISTER OF MARINE

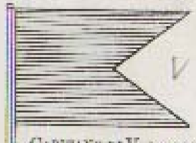

SECRETARY OF MARINE MINISTRY

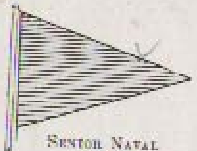

CHIEF OF NAVAL STAFF (Number of stars vary according to rank.)

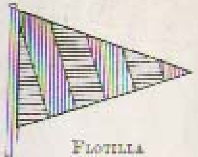

AMMIRAGLIO DI ARMATA

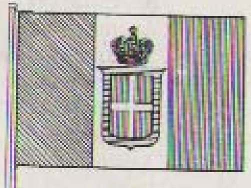

AMMIRAGLIO DI SQUADRA OR DI DIVISIONE

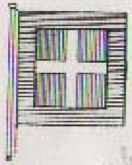

CONTRAMMIRAGLIO


CAPITANO DI VASCELLO (commanding division.)

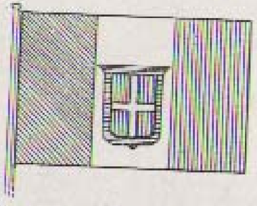

SENIOR NAVAL OFFICER

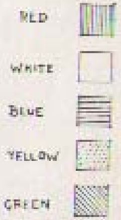

FLOTILLA LEADER


ENSIGN


JACK

[illegible]


MERCANTILE ENSIGN


RED
WHITE
BLUE
YELLOW
GREEN

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## Mercantile Marine.

From "Lloyd's Register" 1937 figures.
1,270 vessels of 3,212,634 gross tonnage.

IP

# SUMMARY OF NAVAL FORCES, DEC. 31, 1937.

| | Building | Built |
|---|---|---|
| 6 *Battleships.* | | |
| Littorio | 2 | — |
| Duilio | — | 2 |
| Cavour | — | 2 |
| 7 *Heavy Cruisers.* | | |
| Trento | — | 2 |
| Zara | — | 4 |
| Bolzano | — | 1 |
| 15 *Cruisers.* | | |
| E. Filiberto | — | 2 |
| Garibaldi | — | 2 |
| A. di Giussano | — | 4 |
| A. Diaz | — | 2 |
| Montecuccoli | — | 2 |
| Quarto | — | 1 |
| Bari | — | 1 |
| Taranto | — | 1 |
| 1 *Obsolete Cruiser.* | | |
| San Giorgio | — | 1 |
| 64 + 12 *Flotilla Leaders and Destroyers.* | | |
| "Navigatori" | — | 12 |
| Leone | — | 3 |
| Premuda | — | 1 |
| Aquila | — | 2 |
| C. Mirabello | — | 2 |
| Aviere | 12 | — |
| Oriani | — | 4 |
| Grecale | — | 4 |
| Dardo | — | 8 |
| Borea | — | 8 |
| Sauro | — | 4 |
| Sella | — | 4 |
| Palestro | — | 8 |
| C. Rossarol | — | 1 |
| Poerio | — | 2 |
| Ardimentoso | — | 1 |

| | Building | Built |
|---|---|---|
| 60 + 16 *Torpedo Boats.* | | |
| Partenope | 16 | — |
| Spica | — | 16 |
| Orsa | — | 4 |
| "Generali" | — | 6 |
| Cosenz | — | 7 |
| Sirtori | — | 4 |
| Abba | — | 8 |
| Audace | — | 1 |
| Cortellazzo | — | 3 |
| Indomito | — | 4 |
| Bafile | — | 5 |
| Albatros | — | 1 |
| 75 O.L.T. | — | 1 |
| 101 + 20 *Motor T.B.'s.* | | |
| S. Turr | — | 1 |
| Various | 20 | 100 |
| 86 + 20 *Submarines.* | | |
| Marcello | 9 | — |
| Brin | 3 | — |
| Calvi | — | 3 |
| Fieramosca | — | 1 |
| Balilla | — | 4 |
| Santarosa | — | 4 |
| Settembrini | — | 2 |
| Archimede | — | 4 |
| Squalo and Glauco | — | 6 |
| Mameli | — | 4 |
| Pisani | — | 4 |
| Galvani | — | 1 |
| Argo | — | 2 |
| Perla | 7 | 20 |
| Sirena | — | 12 |
| Argonauta | — | 7 |
| "H" | — | 5 |
| Foca | 1 | 2 |
| P. Micca | — | 1 |
| Corridoni | — | 2 |
| "X" | — | 2 |

| | Building | Built |
|---|---|---|
| 1 *Escort Vessel.* | | |
| Eritrea | — | 1 |
| 1 *Aircraft Tender.* | | |
| Miraglia | — | 1 |
| 15 *Minelayers.* | | |
| Lepanto | — | 6 |
| Albona | — | 3 |
| Buccari | — | 4 |
| Crotone | — | 2 |
| 38 *Minesweepers* | — | 38 |
| 14 *Gunboats.* | | |
| Berta | — | 3 |
| E. Carlotto | — | 1 |
| Caboto | — | 1 |
| Various | — | 8 |
| Aurora | — | 1 |
| 5 *Monitors.* | | |
| F. di Bruno | — | 1 |
| "Monte" *class* | — | 4 |
| 2 *Training Ships.* | | |
| C. Colombo | — | 2 |
| 1 *Target Ship.* | | |
| San Marco | — | 1 |
| 59 *Auxiliaries.* | | |
| Depôt and Repair Ships | — | 3 |
| Research | — | 2 |
| Survey, etc. | — | 8 |
| Salvage | — | 4 |
| Transports,<br>Oilers, etc. | — | 42 |

## OFFICIAL TABLE OF NAVAL ORDNANCE. (Revised, 1931.)

| ial Designation.— re mm length cal. : A—Armstrong. V=Vickers ı=Ansaldo, S=Schneider. : of introduction. : O.T.O.=Odero-Terni- lando. | 381/40 V. 1917 | 254/45 A 1907 | 254/45 V. 1906 | 203/53 An. 1929 | 203/50 S.-An. 1924 | 190/45 A., V. 1908-1906 | 152/53 An. O.T.O. 1927-29 | 152/50 A. 1918 | 152/45 S. 1911 | 120/50 An. 1926. | 120/50 A., V. 1909 | 120/45 A. 1918 | 102/45 S.-A. 1917 | 102/35 S. 1914-15 | 100/47 O.T.O. 1929 | 76/50 A., V. 1909 | 76/45 S. 1911 | 76/40 A. 1916 | 76/17 S. 1912 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| gnation by Calibre, **c/m.** | 38.1 | 25.4 | 25.4 | 20.3 | 20.3 | 19.05 | 15.24 | 15.24 | 15.24 | 12 | 12 | 12 | 10.2 | 10·2 | 10.0 | 7.62 | 7.62 | 7.62 | 7.62 |
| ore, in **inches** | 15 | **10** | **10** | 8 | **8** | **7.5** | **6** | **6** | **6** | **4.75** | **4.75** | **4.75** | **4** | **4** | **3.9** | **3** | **3** | 3 | 3 |
| Total, in feet | | 39.07 | 38.715 | 36.545 | 34.593 | 29.22 | 27.83 | 25.94 | 23.42 | 19.57 | 20.38 | 18.38 | 15.715 | 12.247 | 15.721 | 13.271 | 11.722 | 10.292 | 4,593 |
| Rifled Bore, in inches | | 358.4 | 370.5 | 358·66 | — | 281.7 | — | 256.6 | 219.2 | — | 204.64 | 174.64 | 150.74 | 114.29 | 12.365 | 126 | 107.2 | 101.57 | 44.88 |
| Powder Chamber, in Inches | | 74.91 | 74.91 | 64.66 | — | 51.65 | — | 44.6 | 44.6 | — | 28.64 | 35.03 | 27.16 | 23.50 | 3.112 | 22 | 25.4 | — | — |
| Bore, in calibres | | 35.84 | 37.05 | — | — | 37.5 | — | 42.77 | 36.54 | — | 43.31 | 36.96 | 37.53 | 28.46 | 15 371 | 42 | 35.73 | 28.42 | 14.96 |
| of Grooves | | 60 | 70 | 52 | 52 | 44 | 44 | 36 | 56 | 36 | 36 | 36 | 40 | 32 | 26 | 28 | 24 | 16 | 24 |
| ist of Rifling, in calibres | | 30 | 00-30 | — | 30 | 00-30 | 30 | 33 | 36 | 30 | 30 | 30 | — | — | 30 | 30 | 35.9 | 33 | 22 |
| l Weight, in tons | 82 | 34.49 | 35.339 | 19.170 | 20.800 | 14.478 | 7.700 | 8.100 | 7.025 | 3.00 | 3.662 | 4.035 | 2.327 | 1.200 | 2.020 | 1.122 | 0.698 | 0.660 | 0.104 |
| Armour-piercing projectile lb. | | 185 | 185 | 111.994 | 103.19 | 70.987 | 43 | — | — | 19 | — | — | — | — | — | — | — | — | — |
| Common Shell H.E., lb. | | 185 | 185 | — | — | 70.987 | — | 32.79 | 30.64 | — | 14.66 | 9.589 | 9.470 | 6.50 | 10.319 | 3.02 | 3.571 | 2.281 | 0.559 |
| Armour-piercing projectile, lb. | | 491 | 491 | 275.573 | 260 | 200.39 | 103.5 | — | — | 50.5 | — | — | — | — | — | — | — | — | — |
| Shell H.E., lb. | | 489.8 | 489.8 | — | — | 498.5 | — | 110.22 | 103.61 | — | 48.74 | 48.74 | 30.31 | 30.31 | 30.318 | 14.05 | 14.05 | 13.954 | 11.68 |
| Shrapnel, lb. | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 11.68 |
| Armour-piercing projectile, lb, | | 4.37 | 4.37 | — | — | 2.332 | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Shell H.E., lb. | | 29.86 | 29.86 | — | — | 11.706 | — | 5.996 | 7.528 | — | 2.711 | 2.711 | 2.866 | 2.866 | — | 1.102 | 1.102 | — | 0.782 |
| Shrapnel, lb. | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.165 |
| le Velocity, in ft. secs, | | 2788.77 | 2788.77 | 3031.180 | 2743.20 | 2788.77 | 2785 | 2854 | 2723 | 2786 | 2788 | 2460 | 2788 | 2460 | 2438.40 | 2460 | 2460 | 2214 | 1233 |
| le gy —Total tons per sq. Inch | | 17.71 | 17.71 | — | — | 17.98 | — | 18.37 | 18.86 | — | 18.37 | 15.75 | 18.37 | 18.37 | — | 18.37 | 15.75 | — | 12.47 |

*Note.*—German 5·9 in. and Austrian 3·9 in. are retained in ex-enemy cruisers and destroyers. There is also a new 15 inch, and an O.T.O. model 12·6 inch.

ıh in Monitors.
*Cesare* class.
. 45 cal. *S. Giorgio*.
. 53 ,, *Zara* class and *Bolzano*.
50 ,, *Trento* classes.
. 45 ,, *San Giorgio*.
, 53 ,, *Condottieri* class and later types.
. 50 ,, *Quarto* and *Navigatori* class.
, 47 ,, *Trento*, *Zara*, and *Condottieri* classes.

*Displacement.*

Now given in English Tons, "Standard" calculation.

### Directors, Rangefinders, &c.

ed by the Galileo and S. Giorgio Companies, of Florence and Genoa, espectively. Rangefinders are of a new model both co-incident and ereoscopic, of 5 and 7.20 metres base for main armament and 3 etres for secondary guns.

### Programmes

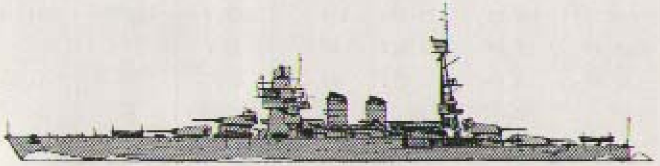
| | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 |
|---|---|---|---|---|---|---|---|
| Capital Ships .. | — | — | — | *Littorio*<br>*Vittorio Veneto* | — | — | — |
| Cruisers .. .. | *E. di Savoia*<br>*Duca d'Aosta* | *G. Garibaldi*<br>*D. Degli Abruzzi* | — | — | — | — | — |
| Escort Vessels .. | — | — | — | *Eritrea* 4 *Orsa* | — | — | — |
| Destroyers .. .. | — | — | — | — | 4 *Oriani* | 12 *Aviere* | |
| Torpedo Boats .. | *Spica* *Astore* | *Centauro* *Climene* | *Perseo* *Sirio*<br>*Albatros* | *S. Torr* | 10 *Vega* | 16 *Partenope* | |
| Submarines .. | — | — | — | *Foca* *Zoea* | 10 *Perla*<br>2 *Argo* | 1 *Foca*<br>10 *Adua* | 9 *Marcello*<br>3 *Brin*<br>7 *Adua* |
| M.T.B. .. .. | — | — | — | — | — | 25 | 60 ? |

*Torpedoes.*

Supplied by Silurefido Italiano di Fiume.

*Cal.* 533·4 mm. *Length*, 7·2 m. *Charge* 250 kg. *Speed*, 4,000 m. = 50 kts., 6,000 — 43 kts., 8,000 — 39 kts., 10,000 — 34 kts., 12,000 — 30 kts.

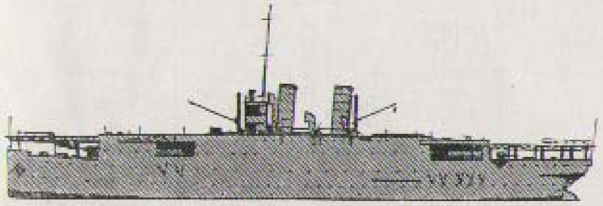
## ITALY—Silhouettes (Battleships, Seaplane Carrier and Cruisers.)



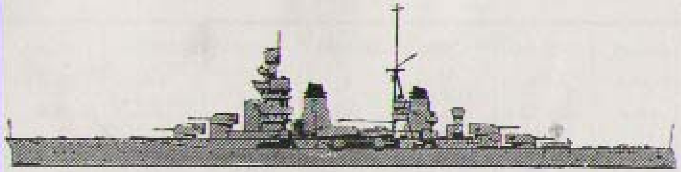
Cavour, Cesare.

(*Reconstructing*).
(Will probably resemble *Cavour* type).

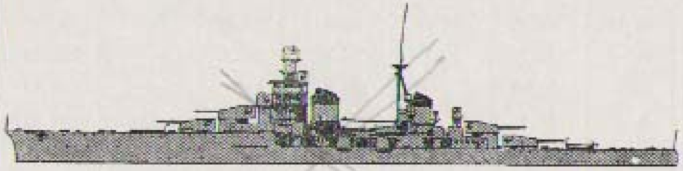
Doria. Duilio.



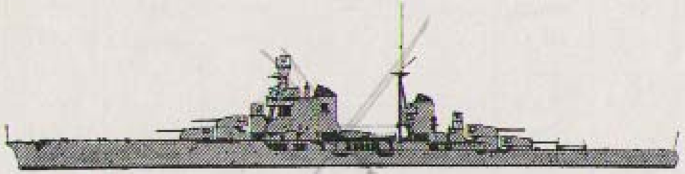
Miraglia.



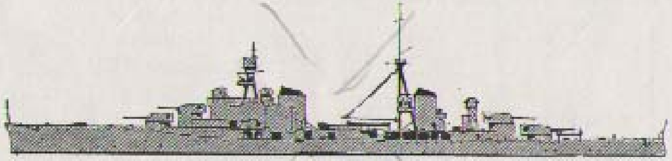
Gorizia.



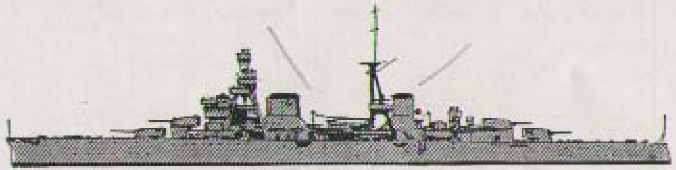
Zara. Fiume.



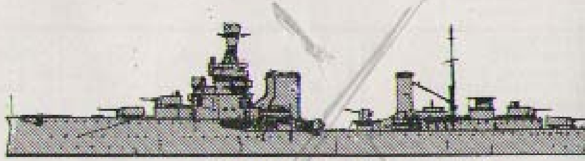
Pola.



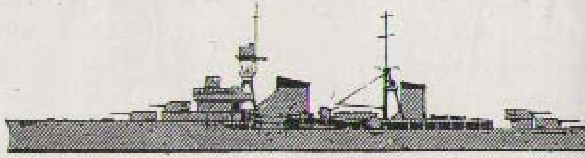
Bolzano.



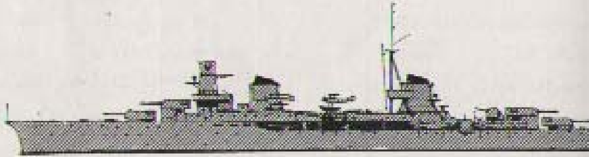
Trento. Trieste.



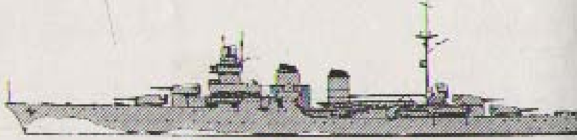
Condottieri *class.* "A" *type.*



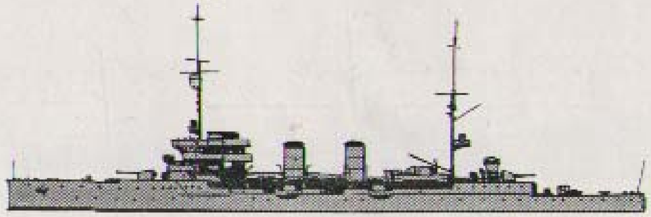
Condottieri *class* "B" *type*



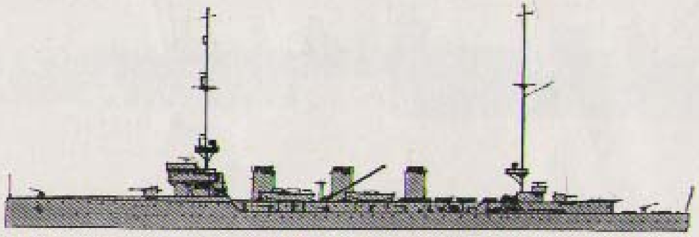
Condottieri *class* "C" and "D" *types.*
(latter with thinner after funnel).



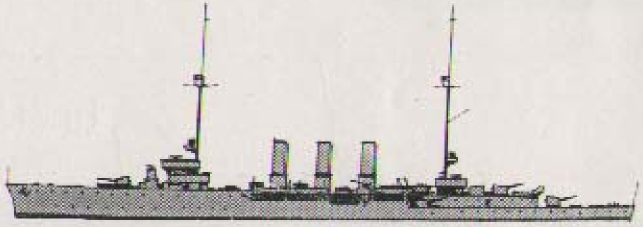
Condottieri *class* "E" *type.*



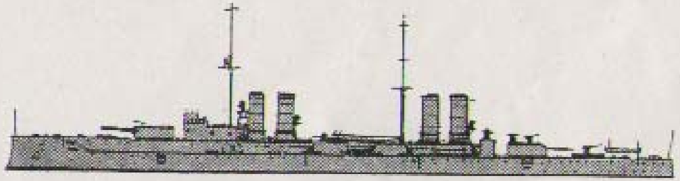
BARI.



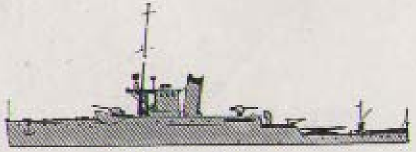
QUARTO.
(Topmasts now shorter.)



TARANTO.

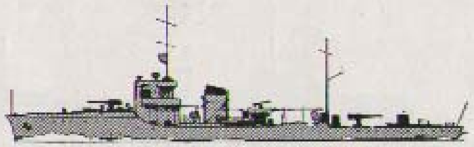


SAN GIORGIO.

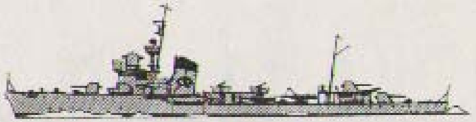


BAFILE *class.*

5

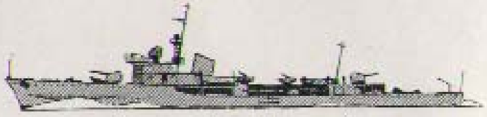


ALBATROS.



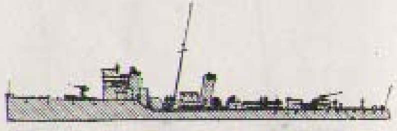
SPICA *class.*

32

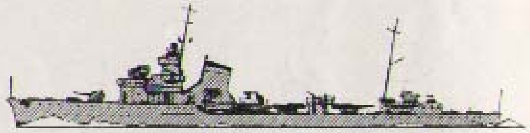


CRIONE *class.* (Approx.)

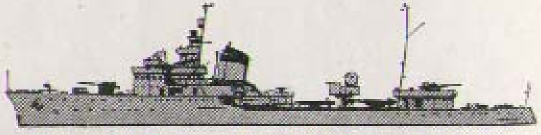
4



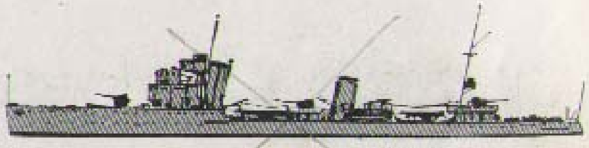
75 O.L.T.



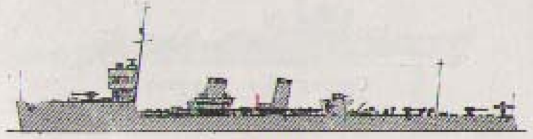
GRECALE *class.*



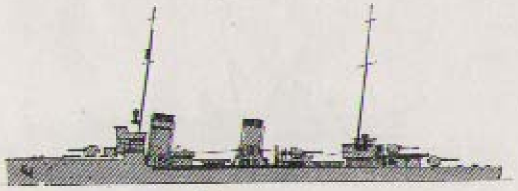
DARDO and FOLGORE *classes.*



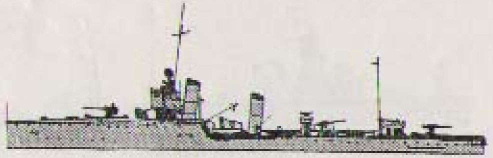
NAVIGATORI *class.*


1

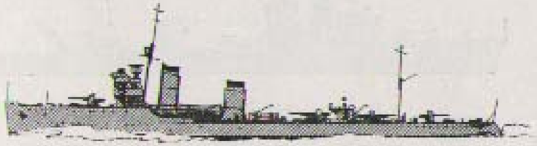
AUDACE.


1

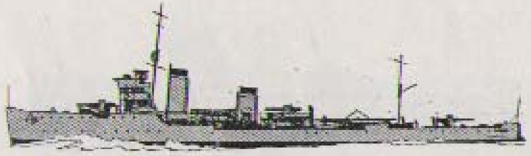
PREMUDA.


1

ARDIMENTOSO.

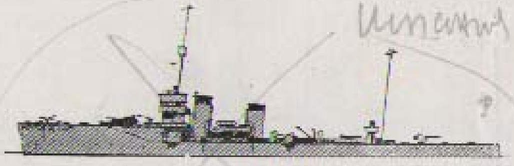

4

CURTATONE *class.*

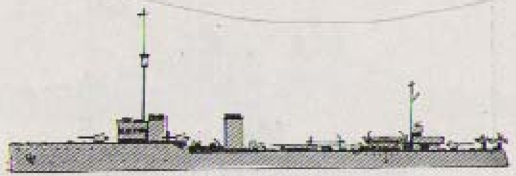

48

PALESTRO *class.*

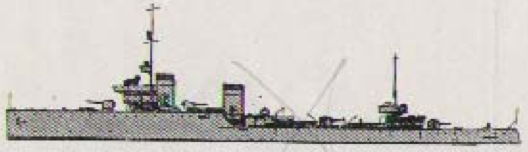
Unarmed


?

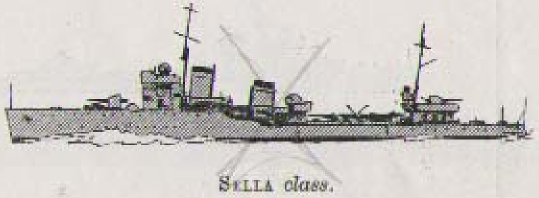
A. POERIO.
(G. PEPE same, but large deckhouse before mainmast.)


2

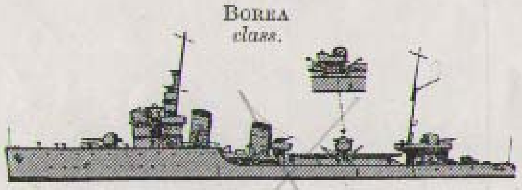
MIRABELLO *class.*



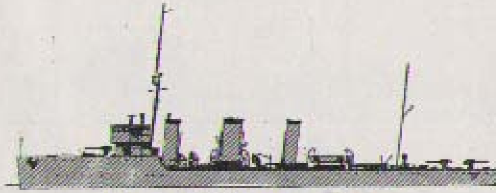
LEONE *class*



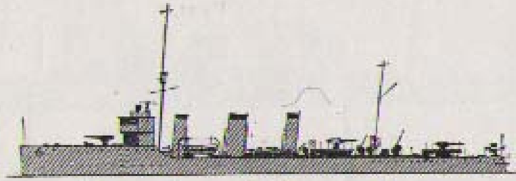
SELLA *class.*



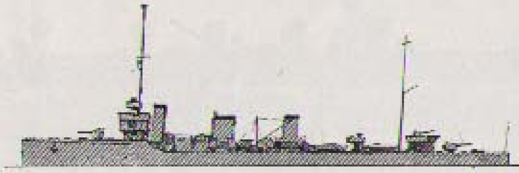
SAURO and BOREA *classes.*



ABBA and INDOMITO *classes.*

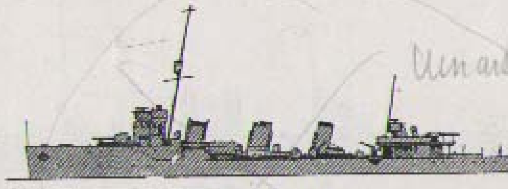


SIRTORI, COSENZ, & GENERALI *classes.*

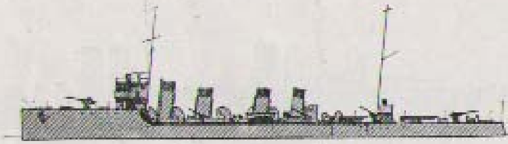


C. ROSSAROL.

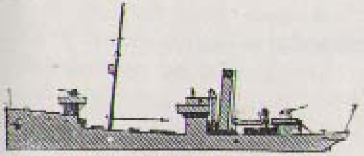
Unar

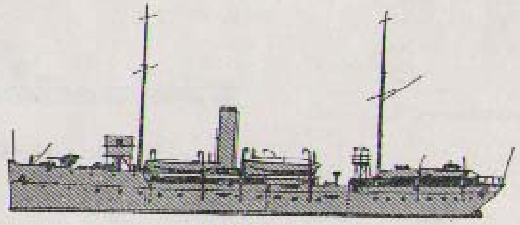


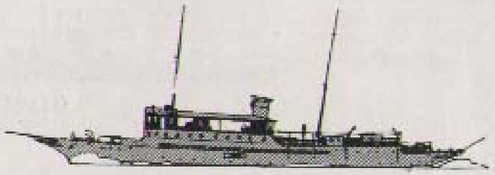
AQUILA. FALCO.

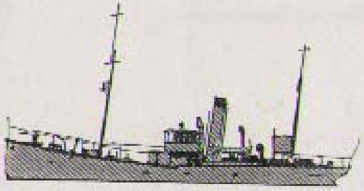


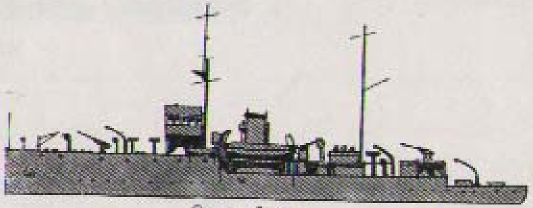
CORTELLAZZO *class.*

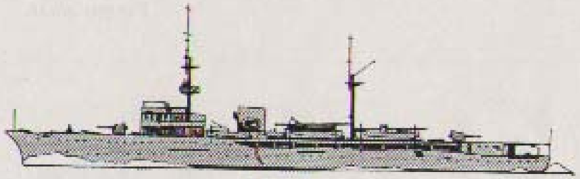

Cirene.


Caboto.

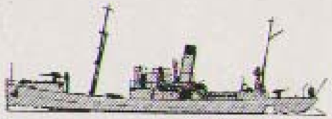

Aurora.

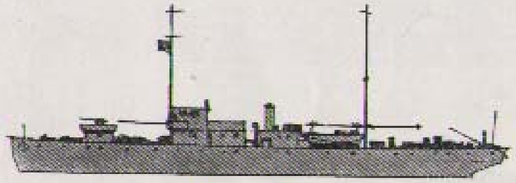

Palmaiola, *etc.*

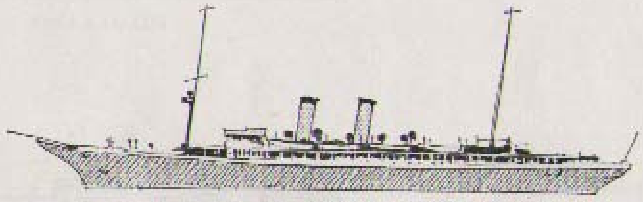

Ostia *class.*

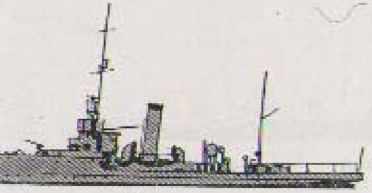

Eritrea.

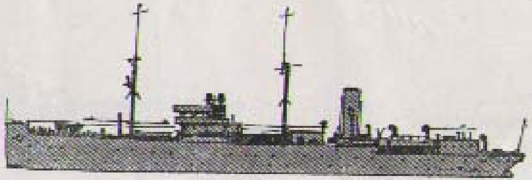
Fr.

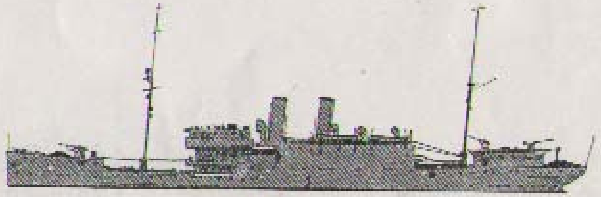

Berta *class.*

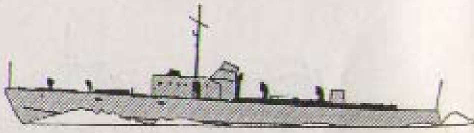

Fasana *class.*

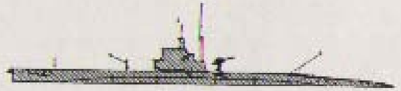

Savoia.

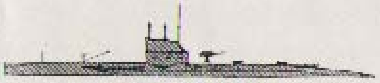

Crotone,
Viesti.

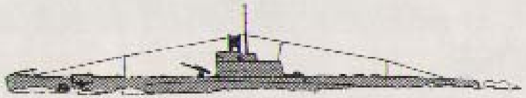

Quarnaro.

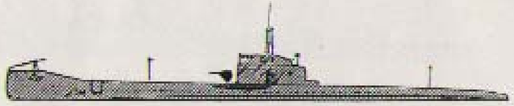

Pacinotti
Volta.

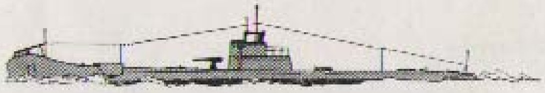

S. Turr.

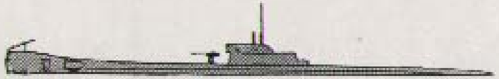

H *class.*

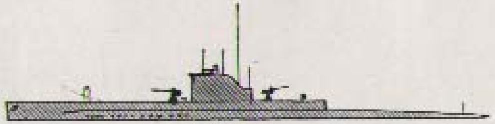

X 2, X 3.

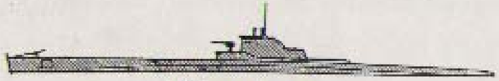

SETTEMBRINI *class.*

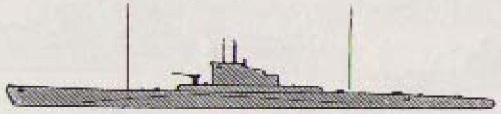

DELFINO *class.*

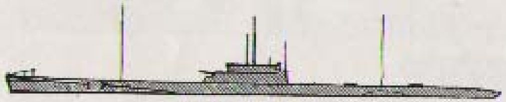

CORRIDONI *class.*

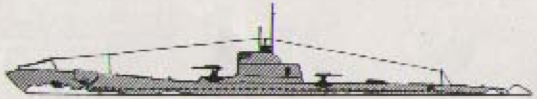

SANTAROSA *class.*

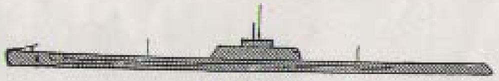

GALVANI.

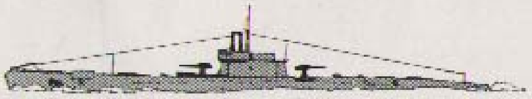

PISANI *class.*

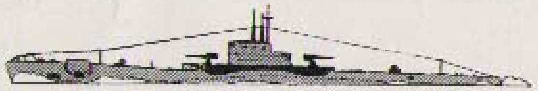

MAMELI *class.*

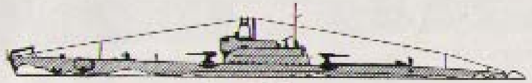

BALILLA *class.*

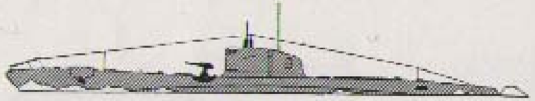

GLAUCO *class.*

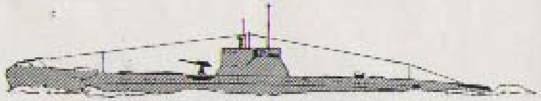

FIERAMOSCA.


ARCHIMEDE *class.*


MICCA.


CALVI *class.*


ARGO *class.*


ARGONAUTA *class.*
(SIRENA and PERLA *classes* similar.)

## Special Note.

**It is reported that 2 nore battleships of this ype are to be laid down arly in 1938.**

| Br | DES | Ital |
|---|---|---|
| | 1 | |

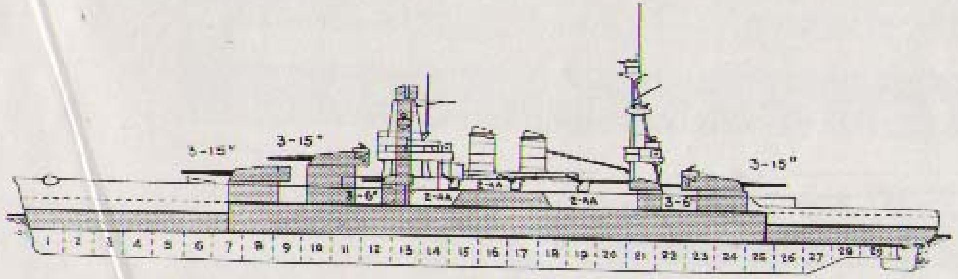
Ital

(Littorio Class—2 Ships.)

**LITTORIO** (Aug. 22, 1937), **VITTORIO VENETO** (July 25, 1937). Both laid down October 28, 1934, by Ansaldo, Sestri Ponente, Genoa, and by Cantieri Riuniti dell' Adriatico, San Marco, Trieste, respectively. *Standard* displacement: 35,000 tons. Complement, 1,600. Length: 754¼ (*p.p.*), 774 feet (*o.a*). Beam: 103 feet. Draught: 28 feet (*mean*), 30¼ feet (*max.*).

Guns:
9—15 inch.
12—6 inch, 55 cal.
12—3·5 inch AA.
20 M.G. AA.
Aircraft: 4

Armour:
9″—10″ Belt.



Machinery: Parsons geared turbines. 4 shafts. S.H.P.: 150,000 = over 30 kts. High pressure water-tube boilers of 3-drum type. Oil fuel.

*Notes.*—With exception of some of engineering details, above information is all official. Drawing is based on reliable data. These ships were originally to have been completed before the end of 1938, but it is not likely that they will be ready until at least a year later.

Новороссийск + авар. 29.10.55г.

(Cavour Class—4 Ships.) ⓒ Новороссийск

**CONTE DI CAVOUR** (Aug. 10, 1911), **GIULIO CESARE** (Oct. 15, 1911). Both reconstructed 1933–37.

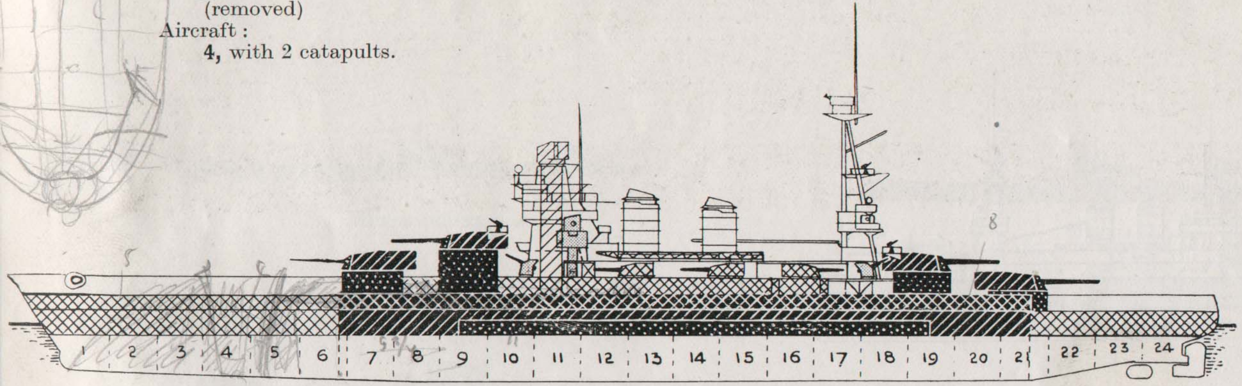
**CAIO DUILIO** (April 24, 1913), **ANDREA DORIA** (March 30, 1913). Undergoing similar НТ reconstruction, 1937–39.

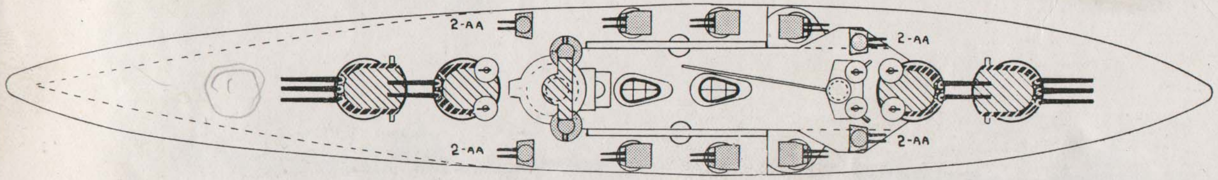
*Standard* displacement (as reconstructed): 23,622 tons (over 25,000 full load). Complement: 1,198. Dimensions: 597 (*w.l.*), 611½ (*o.a.*) × 92 × 30 feet (*mean* draught).

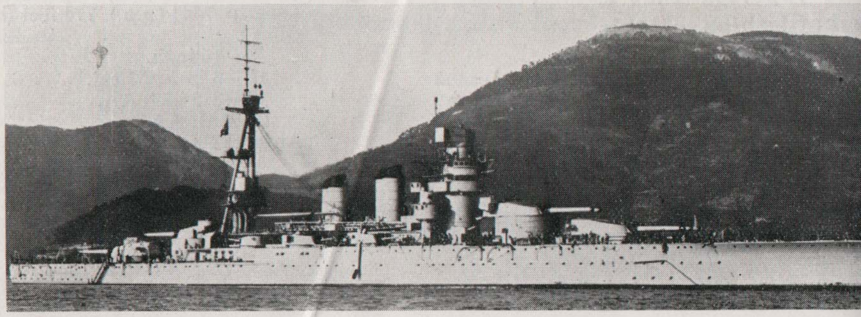
181,96 186,379 28,041 9,144

Guns:
**10**—12·6 inch.
**12**—4·7 inch.
**8**—3·9 inch AA.
**20**—M.G., AA.
Torpedo Tubes:
(removed)
Aircraft:
**4**, with 2 catapults.

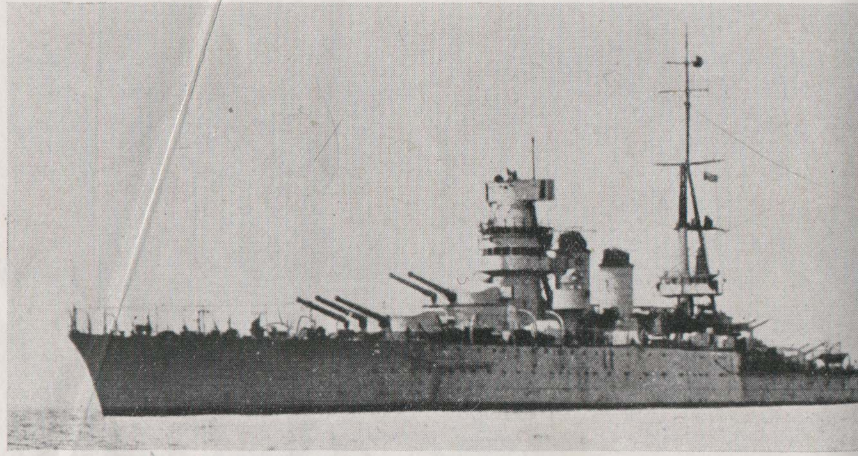
Armour (originally, now improved):
9¾″–8″ Belt (amidships)
5″ Belt (ends)
9½″ Barbettes
11″ Turrets to these
11″ Conning tower (fore)







CAVOUR. 193



CESARE. 1937 Новороссийск

Machinery: Belluzzo geared turbines. 2 shafts. S.H.P.: 75,000 = 27 kts. 8 boilers of 3-drum type. Oil fuel: 2,000 tons.

*Note.*—These ships were originally of entirely different appearance, with a main armament of **13**—12 inch guns, in 3 triple and 2 double turrets. Main alterations include (1) Suppression of the amidships Triple Turret; (2) Substitution of 4·7 inch and 3·9 inch AA. in pairs for the secondary battery of 6-inch guns; (3) Increased power for a speed of 27 kts. or more; (4) Increased length and a new bow of bulbous form; (5) New rig and funnels; (6) Catapults amidships. Cost of reconstruction, Lit 300,000,000 for the two.

A fifth ship of this class, *Leonardo da Vinci*, blew up at Taranto on Aug. 2, 1916.

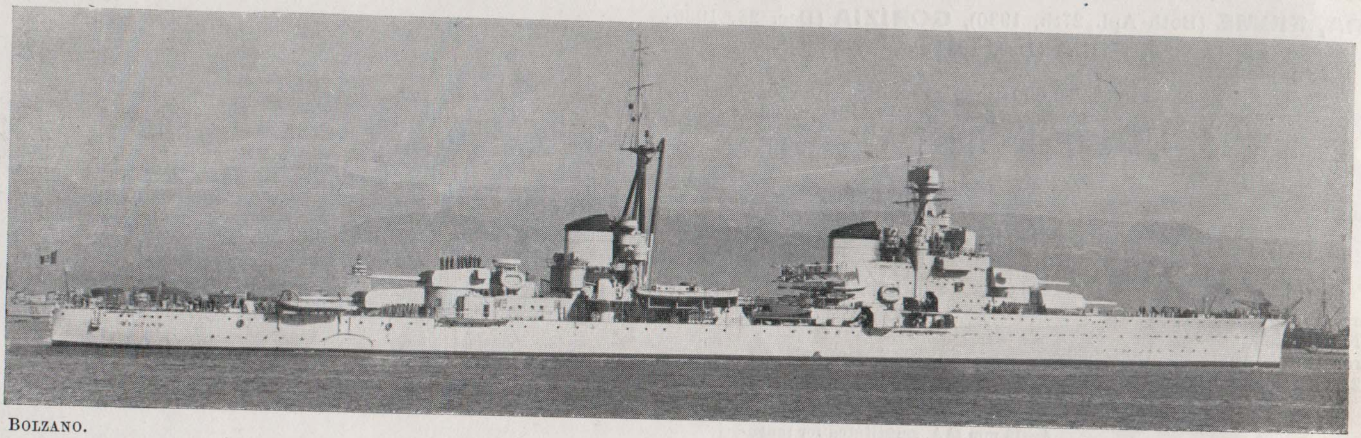
*Gunnery Note.*—12·6 inch guns, first mounted in these 2 ships, are of the latest Terni model, which has given remarkably successful results in proof tests.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Rebuilt by* |
|---|---|---|---|---|---|
| *Cavour* | Spezia | Orlando | 10/8/10 | Jan. 15 | Cant. Riuniti dell' Adriatico |
| *Cesare* | Ansaldo | Ansaldo | 23/6/10 | 29/11/13 | Cant. Nav. del Tirreno |
| *Doria* | Spezia | ,, | 24/3/12 | Mar. 16 | Same 2 yards as above. |
| *Duilio* | Castellammare | ,, | 25/4/12 | May 15 | |

(Modified "Trento" Type.)

**BOLZANO.** Ansaldo, Sestri-Ponente, (Sept., 1932),

*Standard* displacement, 10,000 tons. Complement, 723.
Length 627 (*p.p.*), 637½ (*w.l.*), 646¼ (*o.a.*). Beam 68 feet.
Draught 18¾ feet (*mean*).



Bolzano.

1935, *Sig. F. Cianciafara.*

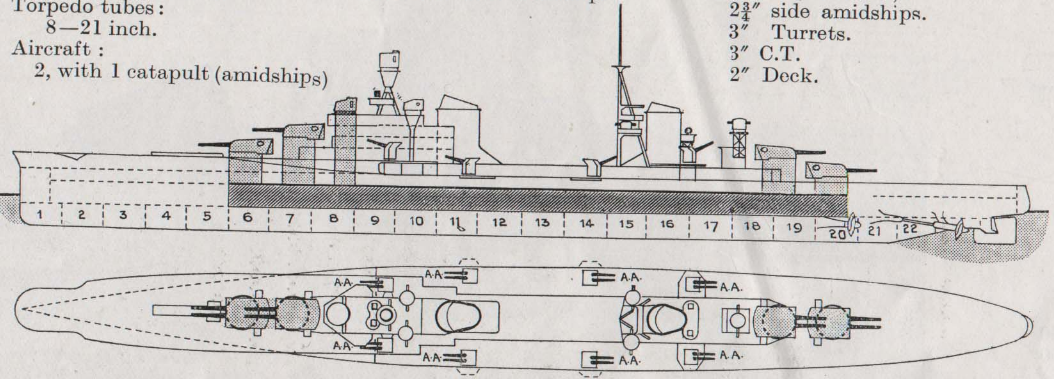
Guns:
- **8**—8 inch. 53 cal.
- **16**—3·9 inch. 47 cal.
- **8**—37 mm. AA.
- **8**—13·2 mm. AA.

Torpedo tubes:
- 8—21 inch.

Aircraft:
- 2, with 1 catapult (amidships)

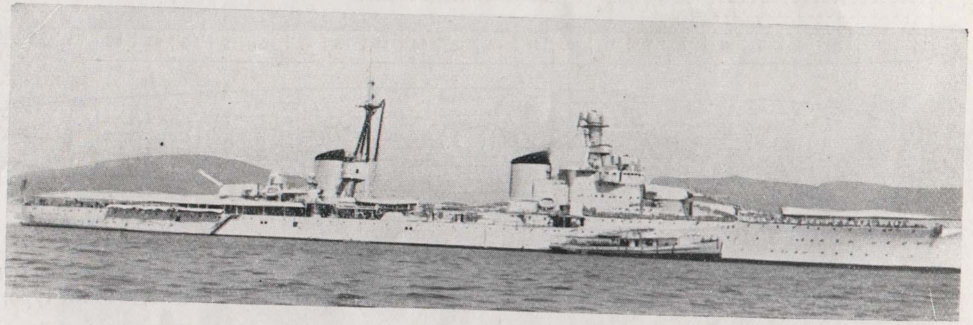
*Note to Plan:*
4—13 mm. AA. substituted for range finder at after end of superstructure. T.T. are mounted on either side, amidships.

Armour (unofficial):
- 2¾″ side amidships.
- 3″ Turrets.
- 3″ C.T.
- 2″ Deck.



Machinery: 4 Parsons geared turbines, S.H.P. 150,000=36 kts. 4 shafts. 10 Ansaldo 3-drum boilers (300 lbs. pressure). Oil fuel: 3,000 tons.

*General Notes.*—Laid down under 1929 Programme as a third unit of the *Trento* class, but differs from these in dimensions and in having a forecastle deck, besides various alterations in rig, bridgework, etc. She resembles *Trento* in sacrificing a certain amount of protection for an additional 3·5 kts. compared with *Zara*—a modern rendering of the "battle cruiser" role applied to cruisers. Speed on 8 hrs. trial=38 kts. *Max.* 39 kts. The bridge structure has been "stream-lined" to flush the funnel in order to minimise back draught at full speed, which drove the funnel fumes into the bridge. Laid down June 1930, completed Aug., 1933.



Bolzano.

1934 *Photo. Sig. F. Cianciafara.*

(ZARA CLASS.—4 SHIPS.)

**ZARA, FIUME** (Both Apl. 27th, 1930), **GORIZIA** (Dec. 28, 1930), **POLA** (Dec. 1931).

*Standard* displacement, 10,000 tons. Complement, 705.

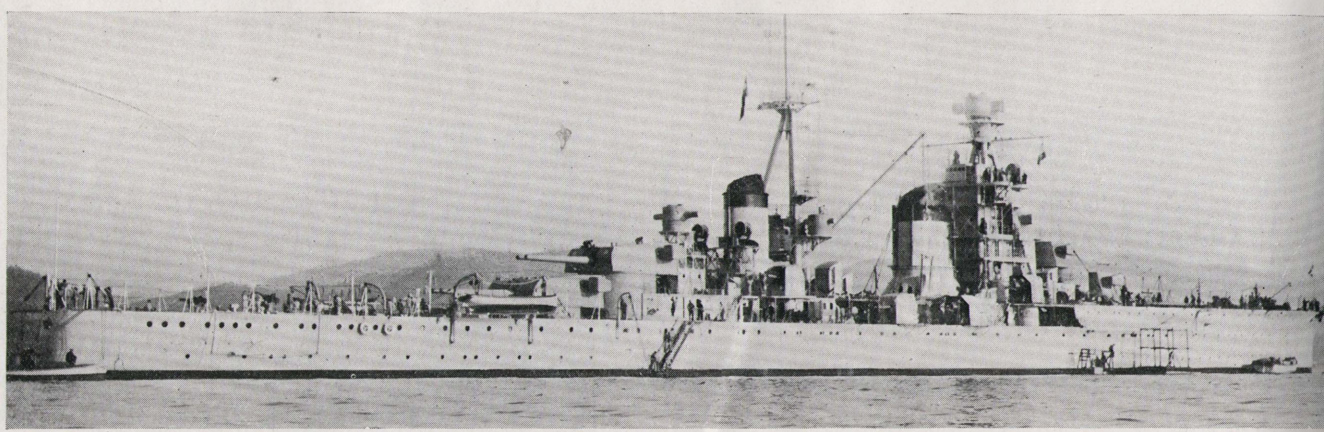
Length (*p.p.*), 599½ feet. Beam, 67⅔ feet. Draught, 19½ feet.

Guns:
- 8—8 inch, 53 cal.
- 16—3·9 inch, 47 cal.
- 8—37 mm. AA.
- 8—13 mm. AA.

Torpedo tubes:
- Nil.

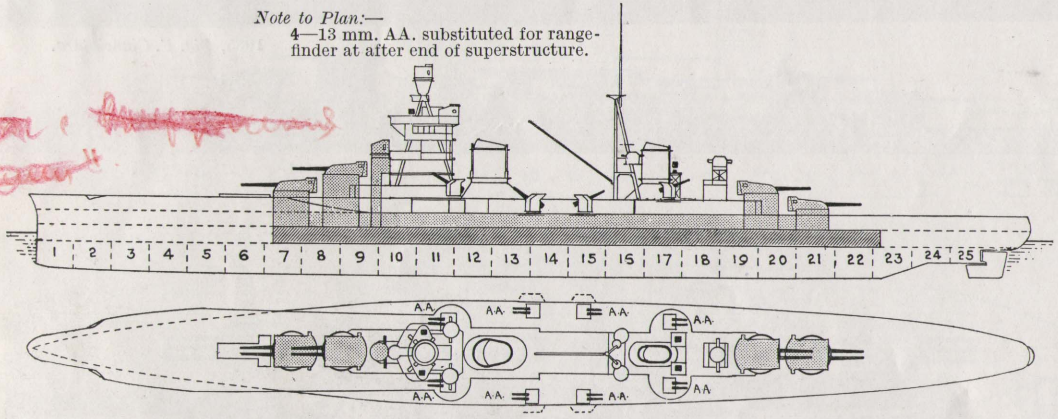
Aircraft:
- 2, with catapult.

Armour:
- 5½″ Side ................
- 5″ Turrets ................
- 4½″ Transverse Bulkhead ..
- 3″ C.T. ................
- 2″ Deck ................



ZARA. 1932 *Photo.*

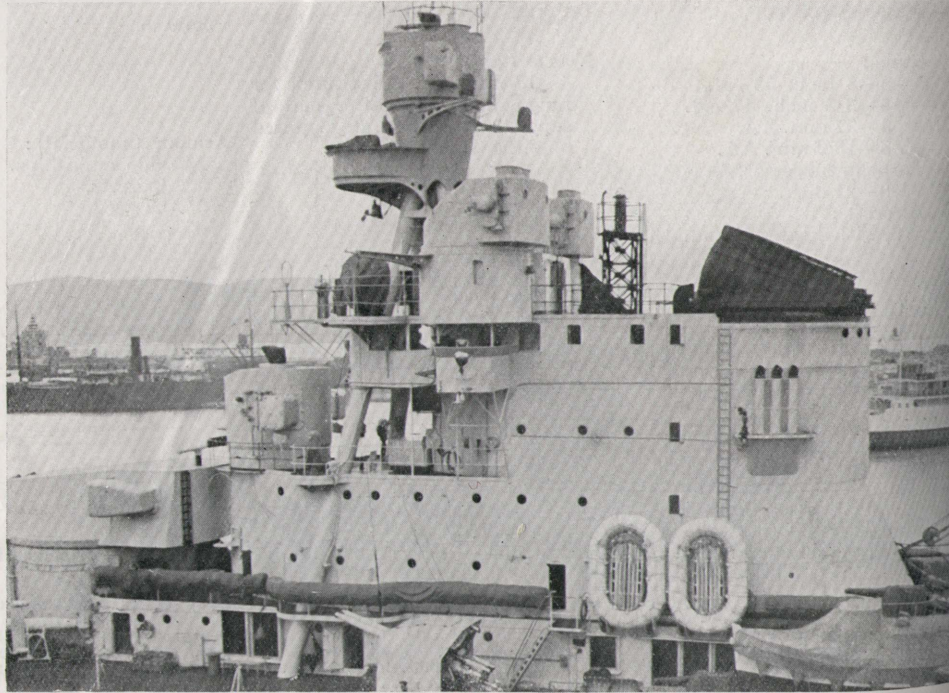
*Note to Plan:—*
4—13 mm. AA. substituted for range-finder at after end of superstructure.



Machinery: 2 Parsons geared turbines. S.H.P.: 95,000 = 32 kts. 2 shafts. Oil fuel: 1,450 tons *normal*, 2,200 tons *maximum*. Radius: 3,200 miles at 25 kts. 8 boilers, 3-drum type, 300 lbs. pressure.

*General Notes.—Zara, Fiume* laid down under 1928 Programme, *Gorizia* under that for 1929, *Pola*, 1930.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials 8 hours.* |
|---|---|---|---|---|---|
| *Fiume* | Stab. Tecnico | Stab. Tecnico | Apr. '29 | Nov. 1931 | 33·1 |
| *Zara* | Odero-Terni-Orlando | Odero-Terni Orlando | July '29 | Oct. 1931 | 34·2 |
| *Pola* | Odero-Terni-Orlando | Odero-Terni Orlando | Mar. '31 | Dec. 1932 | 33·9 |
| *Gorizia* | Odero-Terni-Orlando | Odero-Terni Orlando | Mar. '30 | Dec. 1931 | 33·8 |



POLA. 1935, *Sig. F. Cianciafara*

Observe how bridge structure has been built in flush with funnel to obviate back draught which drew fumes down to bridge at high speed.

### TRENTO CLASS.—2 SHIPS.

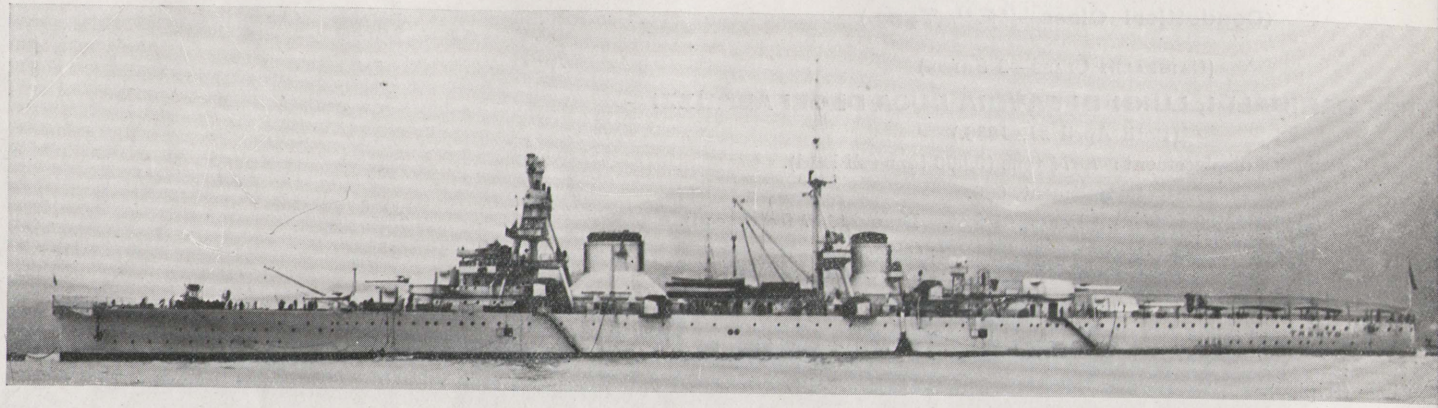
**TRENTO** (Orlando, Leghorn, Oct. 4th, 1927).

**TRIESTE** (Stab. Tecnico, Trieste, Oct. 24th, 1926).

*Standard* displacement, 10,000 tons. Complement, 723.

Length (*p.p.*), 624, (*w.l.*) 636⅓. (*o.a.*), 645 feet.

Beam, 67½ feet. *Mean* draught, 19 feet.



TRENTO.

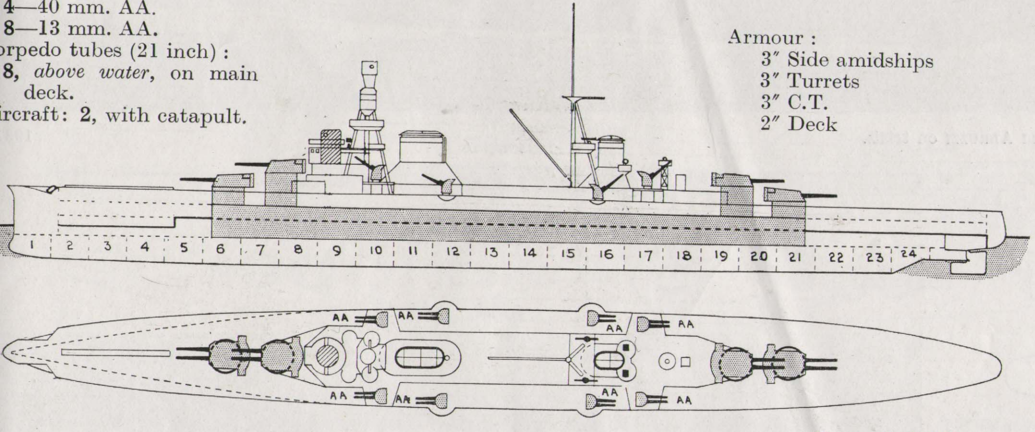
1933 *Photo, Official.*

To differentiate, note that in *Trieste* the lower fore top encloses all the mast legs.

uns :
8—8 inch, 53 cal.
6—3·9 inch, 47 cal.
4—40 mm. AA.
8—13 mm. AA.
orpedo tubes (21 inch) :
8, *above water*, on main deck.
ircraft: 2, with catapult.

*Note to Plan:—*
4—13 mm. AA. substituted for rangefinder at after end of superstructure.

Armour :
3″ Side amidships
3″ Turrets
3″ C.T.
2″ Deck



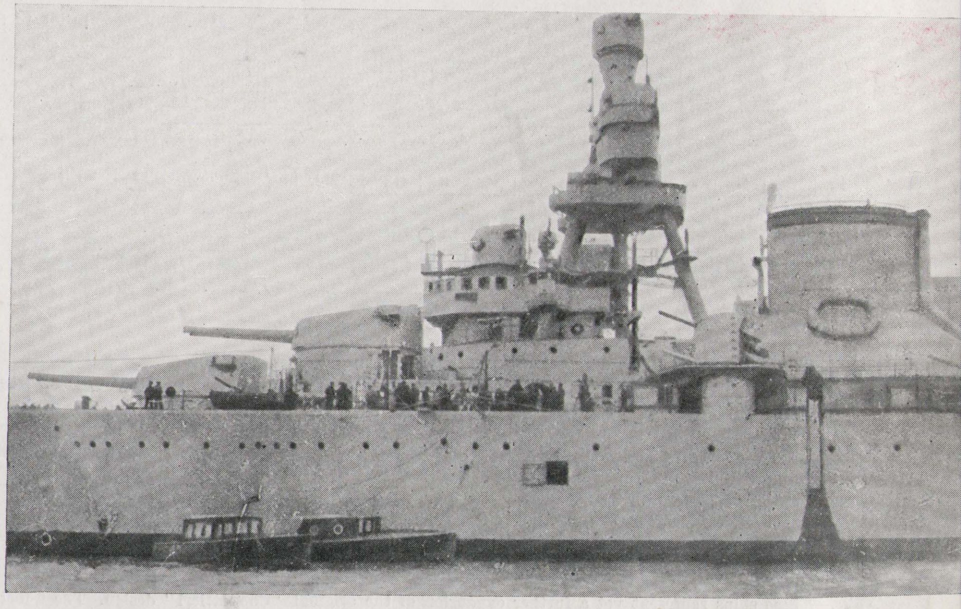
*Plan revised* 1934.

Machinery: 4 Parsons geared turbines. 4 shafts. S.H.P.: 150,000 = 35 kts. 12 3-drum boilers (300 lbs. pressure). Oil fuel: 3,000 tons.

*General Notes.*—Laid down under 1923-24 Programme. *Trento*, 8/2/25; *Trieste*, in June, 1925. Carry three scouting seaplanes, equipped for bombing. Design modified during construction. They were originally to have had hangar amidships, but this idea has been abandoned and a catapult installed on forecastle. In the revised design, after C.T. is dispensed with, AA. armament redistributed, and additional mast control tops added. These ships are believed to be much more lightly constructed than British *Kent* class, in order to attain a high speed. Completion dates: *Trento*, April, 1929; *Trieste*, March, 1930.

*Gunnery Notes.*—8 inch reported to be remarkably powerful weapons with exceptional range. *Maximum* elevation is 45°.

*Engineering Notes.*—Trials in August, 1928, are said to have given consumption of 68 tons of oil per hour. *Maximum* figure, *Trento*, 38·7 kts. Displacement was 11,000 tons (*normal*) at the time. Average trial figures: *Trento*, 146,640 = 36·6 kts. *Trieste*, 124,761 = 35·6 kts. Weight of engines is about 33 lbs. per S.H.P.



TRIESTE.

1932 *Lt. A. E. T. Christie, R.N.*

## (Condottieri Class—"E" Type.)

(Garibaldi Class—2 Ships.)

## GIUSEPPE GARIBALDI, LUIGI DI SAVOIA DUCA DEGLI ABRUZZI

(Both April 21, 1936.)

*Standard* displacement: 7,874 tons (9,000 tons full load).

Complement, 600.

Length: 593 (*w.l.*), 613¾ feet (*o.a.*). Beam, 61 feet. Draught, 17 feet (*mean*).

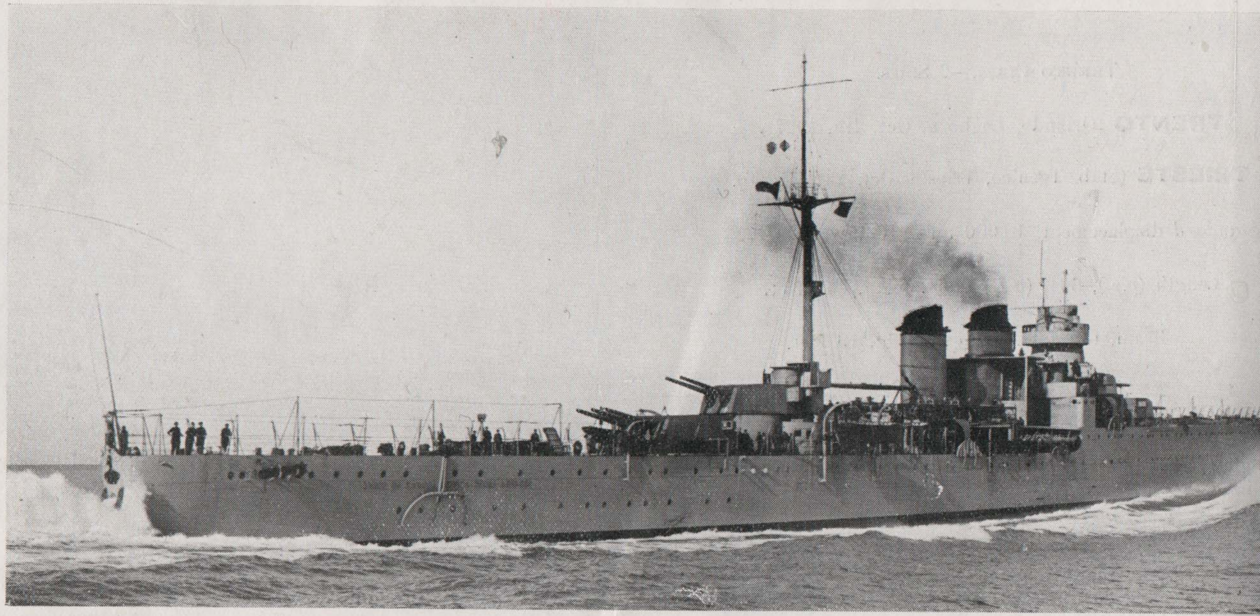
Guns:
- 10—6 inch, 55 cal.
- 8—3·9 inch, 47 cal.
- 8—37 mm. AA.
- 8—13 mm. AA.

Torpedo tubes:
- 6—21 inch (tripled).

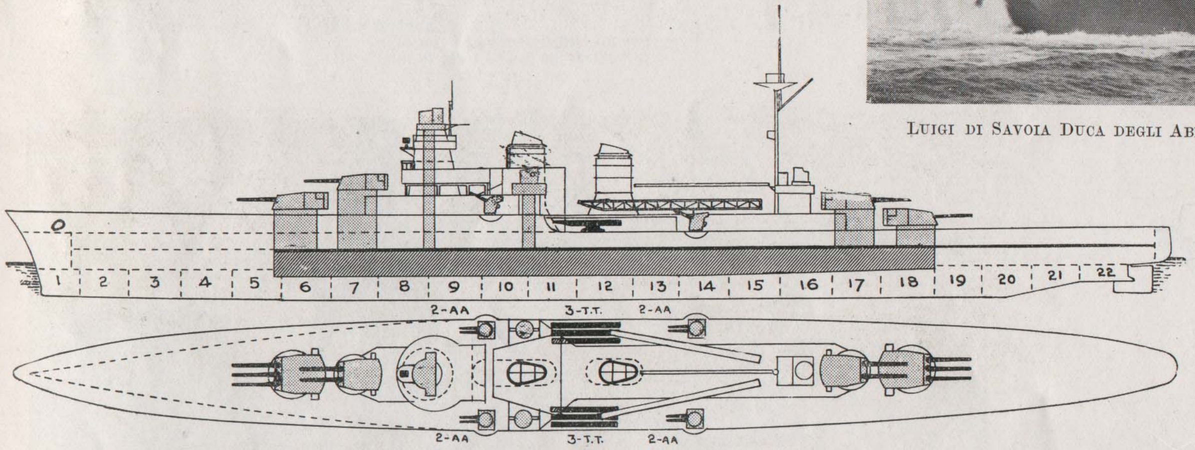
Aircraft:
- 4, with 2 catapults.

Mines:
- Equipped for Minelaying

Armour: (*Unofficial*)
- 1½″—3″ Vert. Side.
- 1½″ Deck.
- 1″ Turrets.
- 1″ C.T.



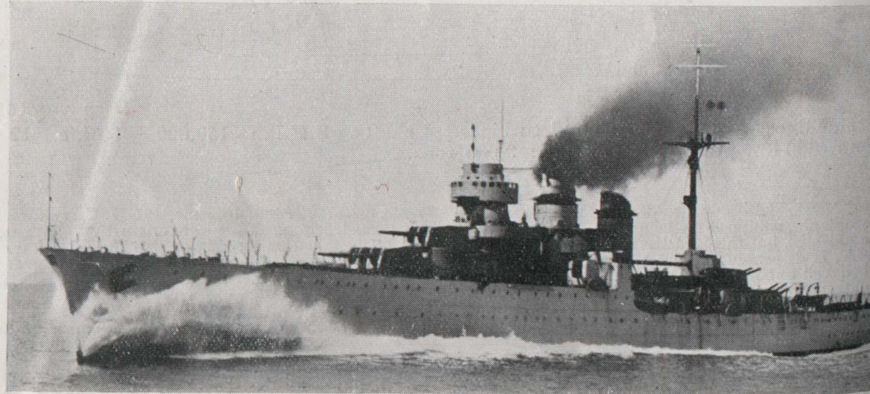
Luigi di Savoia Duca degli Abruzzi on trials.



Machinery: Parsons geared turbines. 2 shafts. Designed S.H.P.: 100,000=35 kts. Boilers: 8, of 3-drum type. Oil fuel: 1,200 tons.

| Name | Builder | Laid down | Completed |
|---|---|---|---|
| *G. Garibaldi* | C.R. dell' Adriatico | Dec. 1933 | 1937 |
| *Luigi di Savoia* | Odero–Terni–Orlando | Dec. 1933 | 1937 |

*Notes.*—These ships represent yet a further expansion of the original "Condottieri" design. The 6-inch guns are a new model, more powerful than the 53 cal. weapons with which previous cruisers have been armed. *Duca degli Abruzzi* reported to have reached 38 kts. on trials.



1937,

Керчь

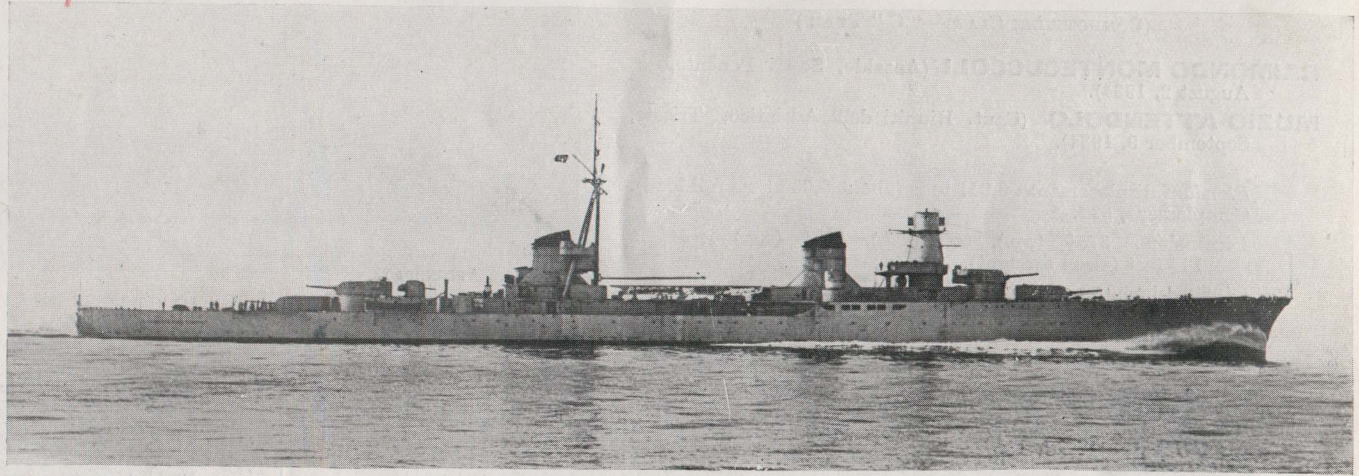
(CONDOTTIERI CLASS.—"D" TYPE.)
(EMANUELE FILIBERTO CLASS—2 SHIPS).

**UGENIO DI SAVOIA** (March 16, 1935).
**MANUELE FILIBERTO DUCA D'AOSTA** (April 22, 1934).

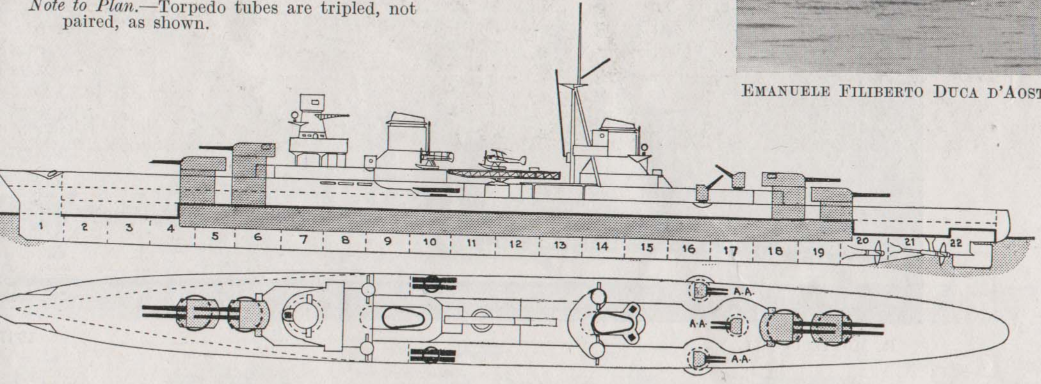
*Standard* displacement: 7,283 tons. (About 8,500 tons full load.)
Complement: 551
Dimensions: 592 (*w.l.*) 610¼ (*o.a.*) × 57⅓ × 16⅓ feet (*mean* draught).
Guns: **8**—6 inch, 53 cal.
**6**—3·9 inch, 47 cal. AA.
**8**—37 mm. AA.
**8**—13 mm. AA.
Torpedo Tubes: **6**—21 inch (tripled).
Aircraft: 3 with 1 catapult.
Mines: Equipped for Minelaying.

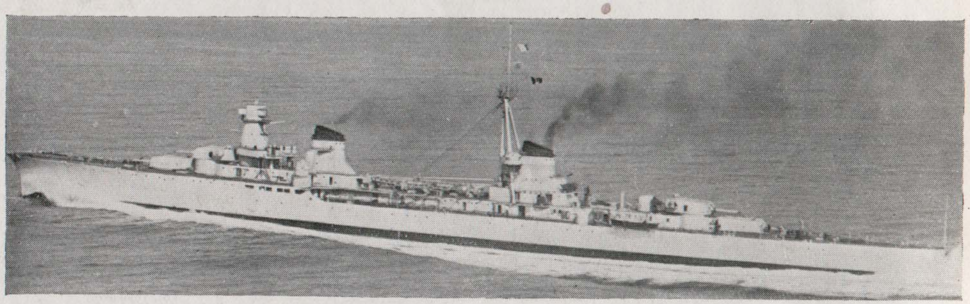
Armour: (*Unofficial*)
1½"–3" Vert. side.
1½" Deck.
1" Turrets.
1" C.T.

*Note to Plan.*—Torpedo tubes are tripled, not paired, as shown.



EMANUELE FILIBERTO DUCA D'AOSTA 1935

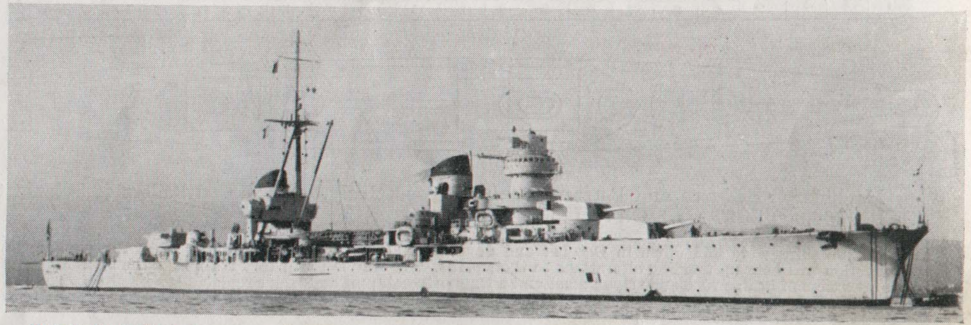




EMANUELE FILIBERTO DUCA D'AOSTA. 1936

Machinery: Geared turbines (Belluzzo in *Eugenio di Savoia*, Parsons in *E. Filiberto*). 2 shafts. 6 boilers, 3-drum type. Designed S.H.P.: 110,000 = 36·5 kts. Oil fuel: 1,200 tons.

| *Name* | *Builders* | *Laid down* | *Completed* |
|---|---|---|---|
| *E. di Savoia* | Ansaldo | Jan., 1932 | Jan. 1936 |
| *E. F. Duca d'Aosta* | Odero-Terni-Orlando | Jan., 1932 | July, 1935 |



EUGENIO DI SAVOIA 1937

*eral Notes.*—These two ships are enlarged editions of the *Montecuccoli* class. Reported to be very lightly constructed.

(CONDOTTIÈRI CLASS—" C " TYPE.)

**RAIMONDO MONTECUCCOLI** (Ansaldo, Sestri Ponente, August 2, 1934).

**MUZIO ATTENDOLO** (Cant. Riuniti dell' Adriatico, Trieste, September 9, 1934).

*Standard* displacement : 6,941 tons (about 8,000 tons full load). Complement, 522.

Dimensions : 575¼ (*pp.*), 577 (*w.l.*), 597¾ (*o.a.*) × 54½ × 14¾ feet (*mean* draught).

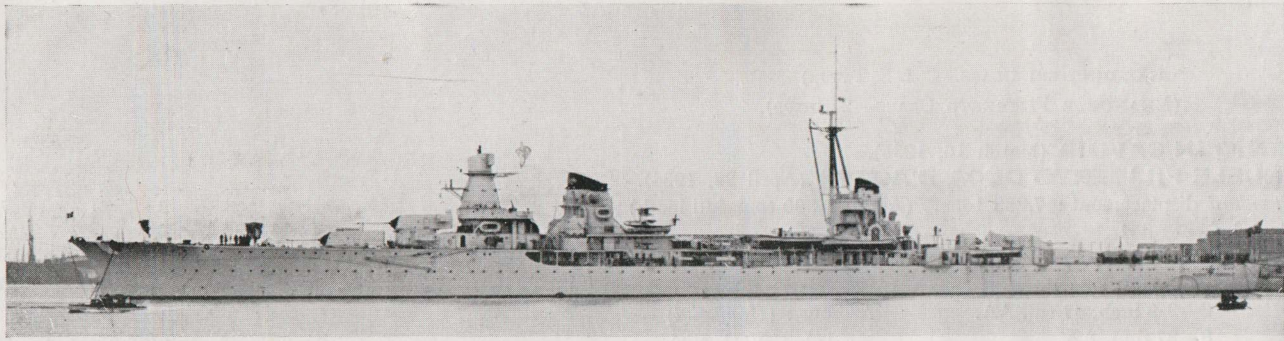
Guns :
8—6 inch, 53 cal.
6—3·9 inch, 47 cal. AA.
8—37 mm. AA.
8—13 mm. AA.

Armour :
Similar to " B " type of this class, but side armour decidedly thicker at w.l.

Torpedo Tubes : 4—21 inch.

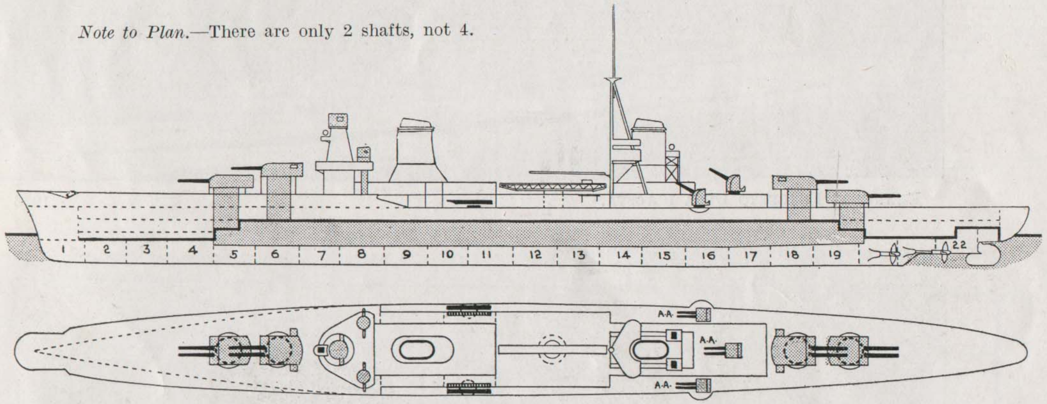
Aircraft : 3, with catapult.

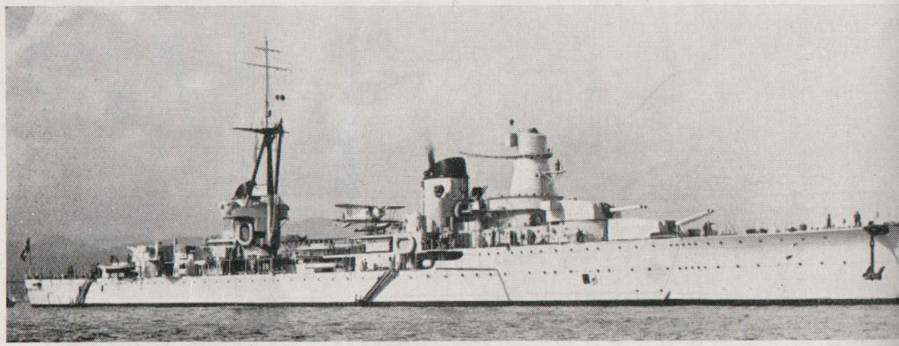
Mines : Equipped for laying.



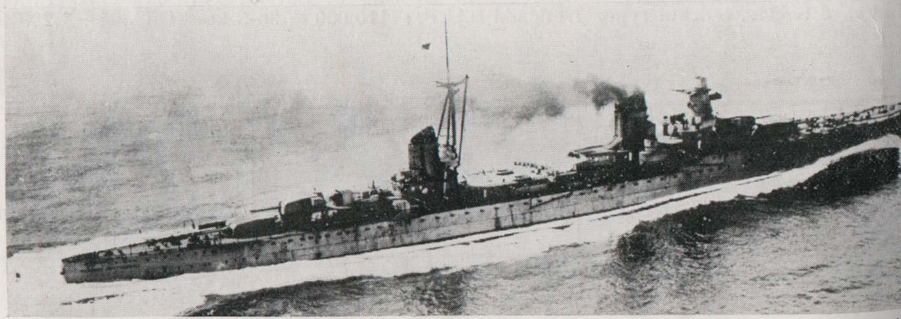
MUZIO ATTENDOLO

*Note to Plan.*—There are only 2 shafts, not 4.





R. MONTECUCCOLI



R. MONTECUCCOLI.

Machinery : Belluzzo and Parsons turbines, respectively. 2 shafts. 6 boilers of 3-drum type. S.H.P. : 106,000 = 37 kts. Oil fuel : 500/1,200 tons.

*Note*—These ships were laid down in October and September, 1931, respectively, under 1930 Programme, but construction was held up pending alterations to their plans. The simple tower forward marks the abandonment of the former tiers of bridgework and tripod mast and a Gagnotto catapult amidships replaces the fixed pattern in previous classes. Note the grouping of the AA. guns aft. Completed in July and August, 1935, respectively. *R. Montecuccoli* made 39·4 kts. on trials, without stores or ammunition on board.

("CONDOTTIERI" CLASS—"B" TYPE, 2 SHIPS.)

**LUIGI CADORNA** (Stabilimento Tecnico Triestino, Sept. 30, 1931).

**ARMANDO DIAZ** (Odero-Terni-Orlando, July 10, 1932).

Displacement: 5,008 tons. Complement: 500.
Dimensions: 547 (*w.l.*), 554½ (*o.a.*) × 50⅘ × 14 feet (*mean*) draught.

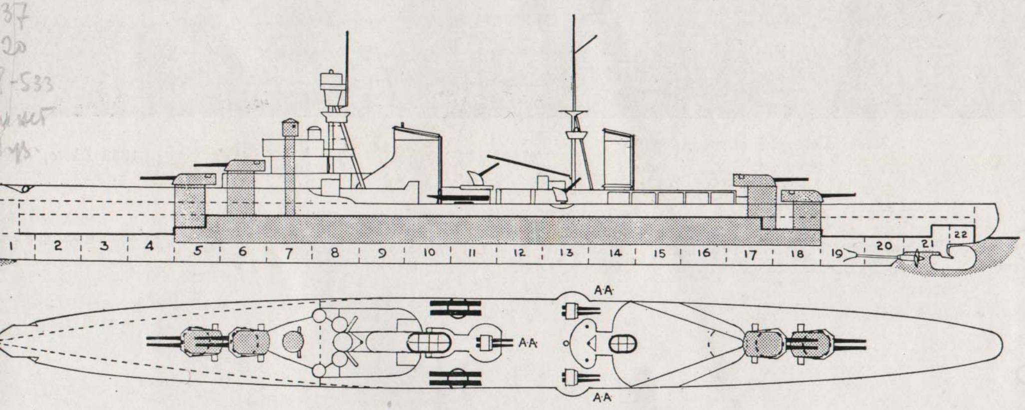
| Guns: | Armour: |
|---|---|
| 8—6 inch 53 cal. | Thin plating only |
| 6—3·9 inch AA. | on Side, Turrets, and |
| 8—37 mm. AA. | Decks. |
| 8—13 mm. AA. | |

Torpedo Tubes: 4—21 inch.

Aircraft: 2, with Catapult.

Mines: Equipped for laying.

φp
φp
φp
5420
135 мм
37
20
-533



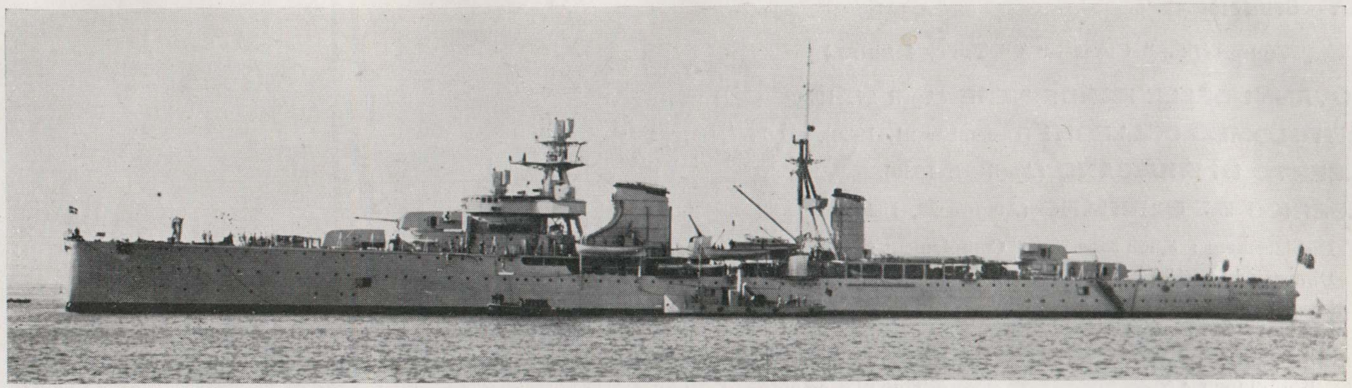
Machinery:

2 Parsons Geared Turbines. 2 shafts.
H.P. 95,000 = 37 kts. (On trials at 5,500 tons displacement *Diaz* made a mean speed of 39·78 kts. with 106,000 H.P.)

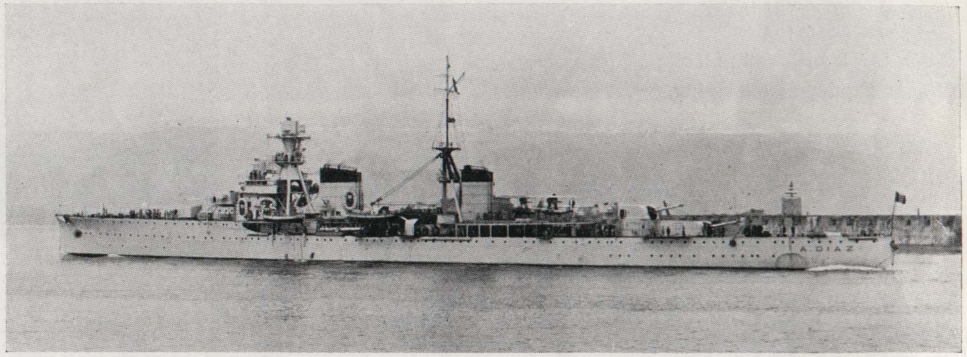
Oil: 500/1,000 tons. 6 boilers of 3-drum type.

Radius: 2,500 miles at 25 kts.

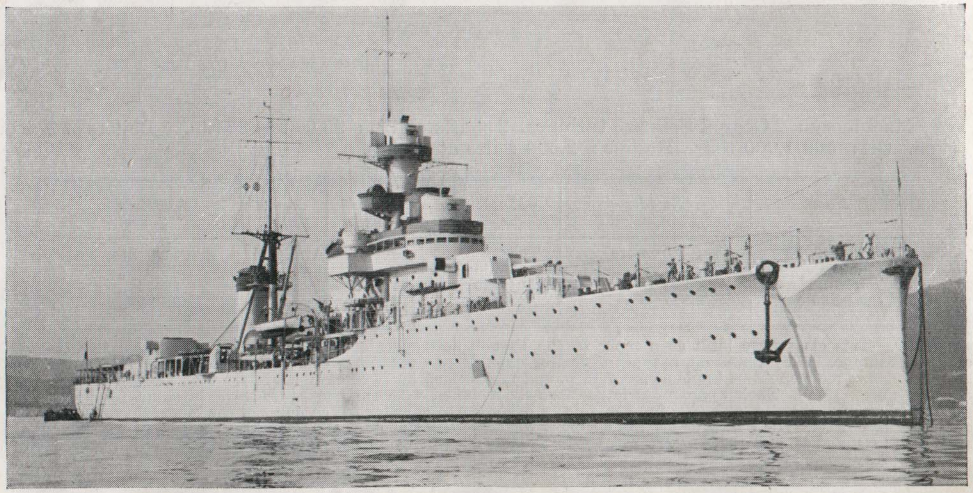
neral Note.—Laid down September and July, 1930, and completed in August and April, 1933, respectively. Are modified *Bande Nere* type with reduced upper works, different arrangement of rig and funnels, and altered positions of AA. guns. There is a fixed catapult training to starboard on the platform between the funnel and after turret, where aircraft are also stowed.



LUIGI CADORNA. 1934 (added 1935) *Sig. F. Cianciafara.*



ARMANDO DIAZ 1935, *Sig. F. Cianciafara.*



ARMANDO DIAZ 1933 *Photo.*

## ITALY—Cruisers

("Condottieri" Class—"A" Type, 4 Ships.)

**GIOVANNI DELLE BANDE NERE** (April 27, 1930).
**BARTOLOMEO COLLEONI** (December 21, 1930). 19.07.40 Средиз. море с.з. от о. Крит кр. Sidny
**ALBERTO DI GIUSSANO** (April 27, 1930).
**ALBERICO DA BARBIANO** (August 23, 1930).

Displacement: 5,069 tons. Complement: 500.

Dimensions: 547 (*w.l.*) 555½ (*o.a.*) × 50⅕ × 14¼ feet (*mean* draught).

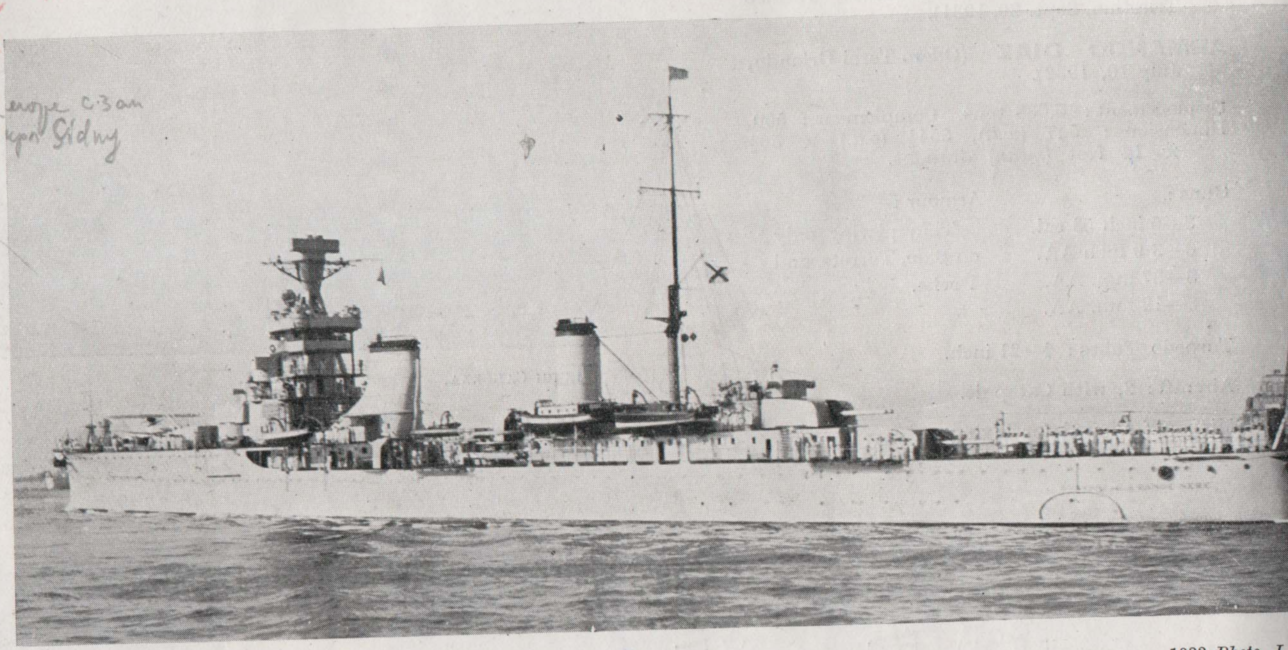
Guns:
8—6 inch, 53 cal.
6—3·9 inch AA.
8—37 mm. AA.
8—13 mm. AA.

Armour:
Side, Deck, Turrets.
Thin plating only.

Torpedo Tubes (21 inch):
4 *above water* (paired).

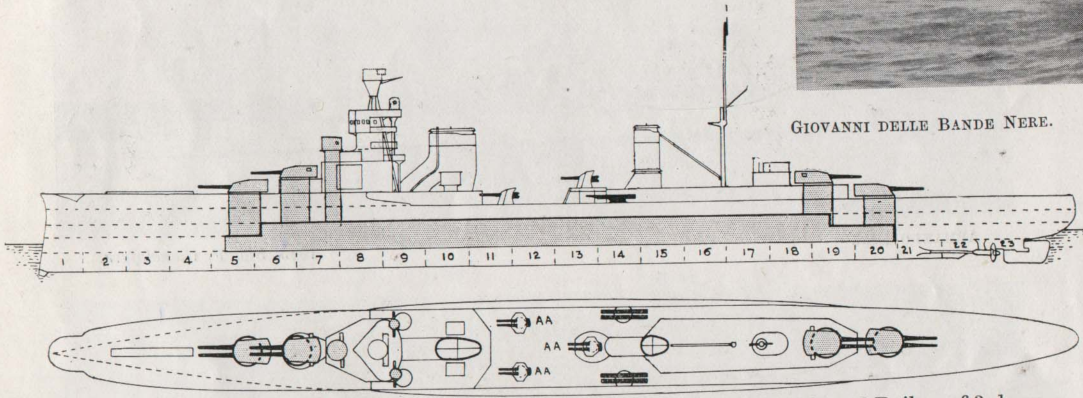
Aircraft: 2 with catapult.

Mines: Equipped for laying.



1933 *Photo*, L

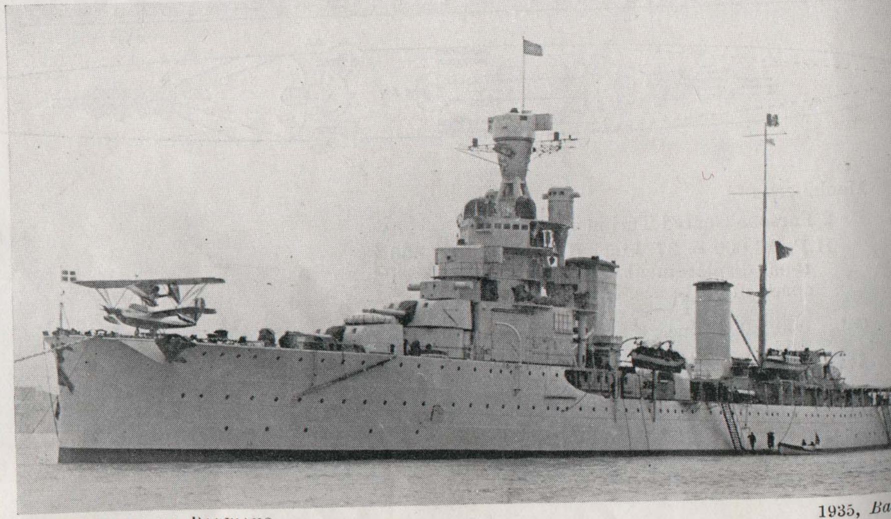
Giovanni delle Bande Nere.



Machinery: 2 Geared Belluzzo turbines. 2 shafts. H.P.: 95,000 = 37 kts. 6 Boilers of 3-drum type. Oil: 500/1,000 tons. Radius: 2,500 miles at 25 kts.

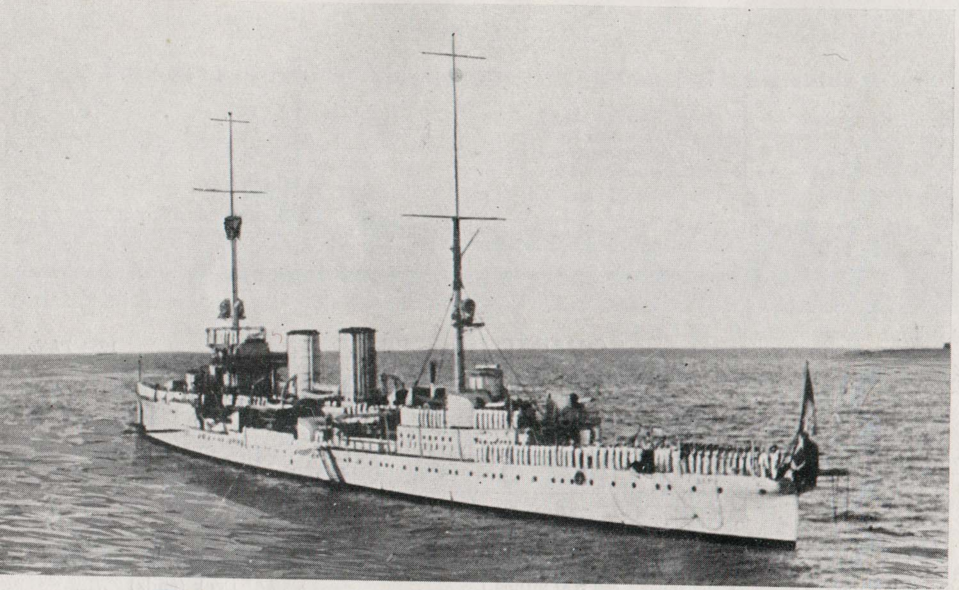
| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* 8 hrs. |
|---|---|---|---|---|---|
| *Bande Nere* | Castellammare | Trieste | Oct. '28 | Apr. '31 | 39·0 kts. |
| *Colleoni* | Ansaldo | Ansaldo | June '28 | Feb. '32 | 40·9 ,, |
| *Barbiano* | Ansaldo | Ansaldo | April '28 | June '31 | 39·74 ,, |
| *Giussano* | Ansaldo | Ansaldo | Mar. '28 | Feb. '31 | 38·95 ,, |

*General Notes.*—This class were built as a reply to the French destroyers of the *Lion* type, over which they have every advantage. They represent a type of cruiser capable of overtaking the fastest destroyer. On trials the *A. da Barbiano* reached 42·04 knots at 5,607 tons, and maintained 39·74 knots for 8 hours with her full armament aboard. (Dec., 1930). Their appearance is particularly striking, with their lofty bridgework, squat funnels, and general effect of aggressiveness. The fire control top is 95 feet over water. A catapult of the Magaldi type is fitted along the forecastle. The policy of placing an order for three ships at once with one firm resulted in various constructional economies. All the Ansaldo ships were launched with their masts and funnels in place and proceeded on trials very soon after taking the water.



Alberico da Barbiano

1935, Ba



1937, *Official.*

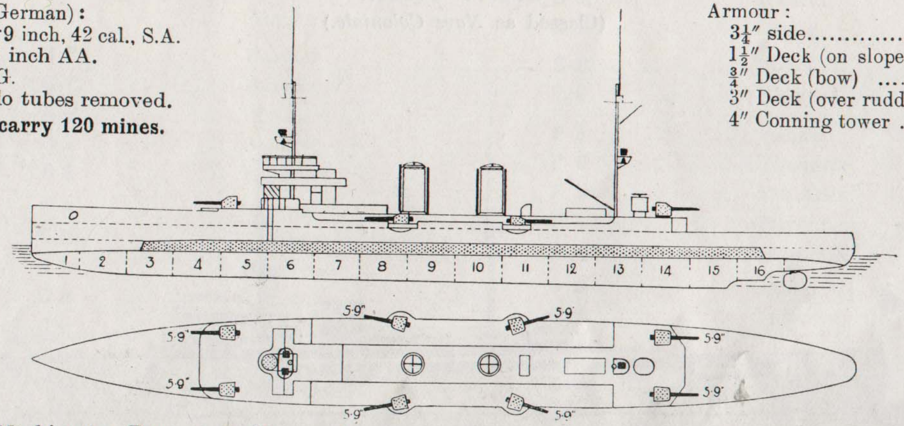
**BARI** (ex-German *Pillau*, ex-Russian *Muraviev Amurski*, April, 1914).

*Standard* displacement, 3,248 tons. *Normal* displacement, 4,600 tons. Complement, 398.

Length } 435½ *w.l.* 444 *o.a.* { Beam, 44½ feet. { *Mean* draught, 13½ feet. *Max.* „ 19 feet.

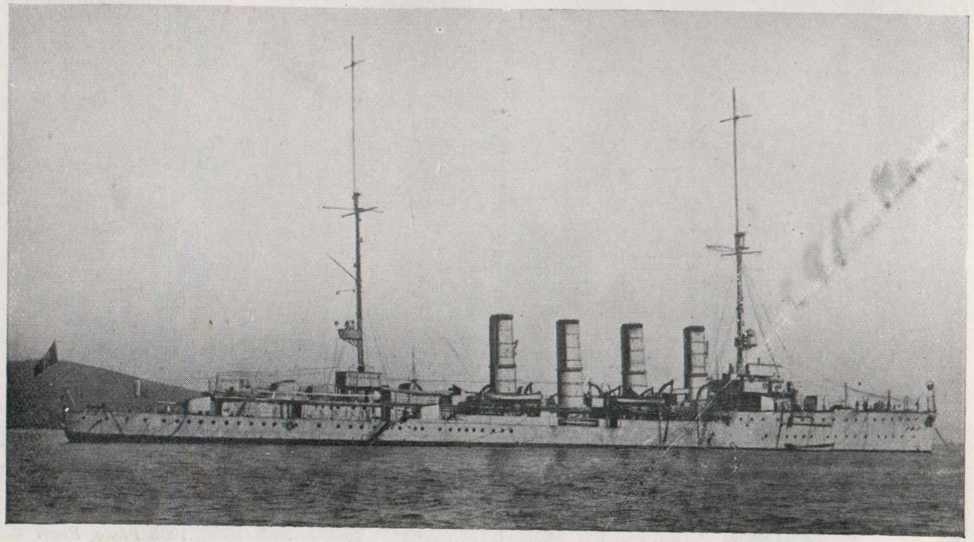
(German):
-5·9 inch, 42 cal., S.A.
-3 inch AA.
I.G.
edo tubes removed.
**n carry 120 mines.**

Armour:
3¼″ side......................
1½″ Deck (on slopes)......
¾″ Deck (bow) ...........
3″ Deck (over rudder) ...
4″ Conning tower ........



Machinery: Parsons turbines. 2 screws. Designed H.P.: 21,000 = 27 kts. Boilers: renewed). Oil fuel: 1300 tons = 4,500 miles at 10 kts.

eral Notes.*—Built by Schichau, Danzig, April, 1913—December, 1915. A sister ship, *Elbing*, sunk in the Battle of Jutland. Both vessels were seized by Germany on outbreak of war with Russia, for whom they were originally laid down. *Bari* taken over by Italy, 1920. Refitted for Colonial service, 1937.



(Forefunnel now removed.)

1930 *Photo, Capt. Mateo Mille.*

**TARANTO** (ex-German *Strassburg*, Aug., 1911).

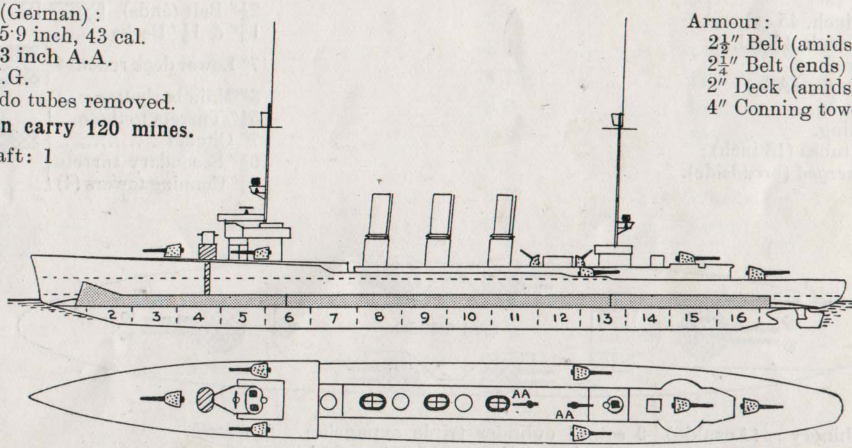
*Standard* displacement, 3184 tons. *Normal* displacement, 4550 tons; 5100 tons *full load.* Complement, 445.

Length (*p.p.*) 440⅓ feet (*w.l.*,) 446⅕ feet. (455 *o.a.*) Beam, 44 feet. *Mean* draught, 12⅓ feet. (*Max.* 16¾)

Guns (German):
7—5·9 inch, 43 cal.
2—3 inch A.A.
3 M.G.
Torpedo tubes removed.
**Can carry 120 mines.**

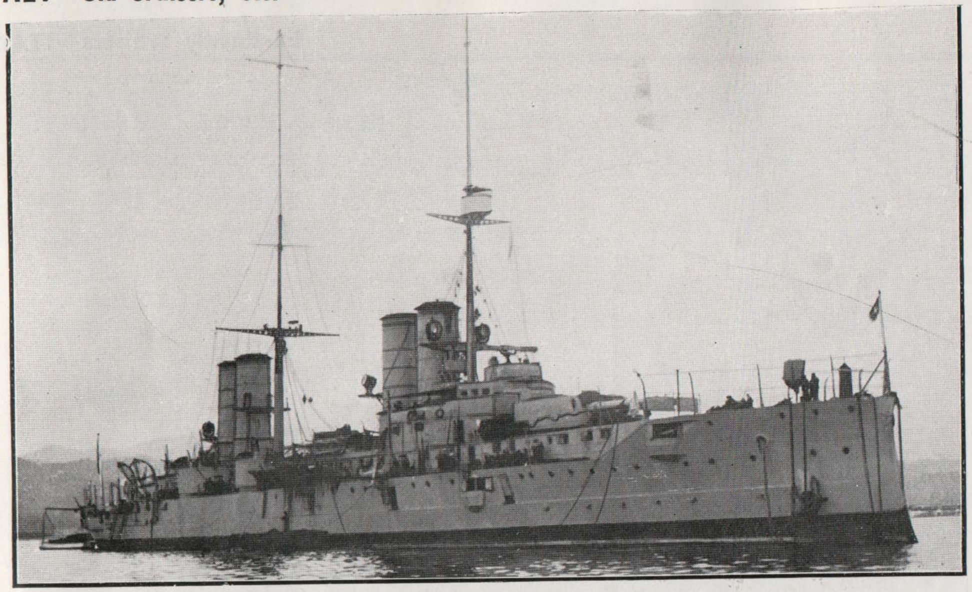
Aircraft: 1

Armour:
2½″ Belt (amidships)......
2¼″ Belt (ends) ...........
2″ Deck (amidships)......
4″ Conning tower ........



Machinery: 4 Parsons turbines. 2 screws. Boilers: 14 Schulz-Thornycroft. Designed H.P. 13,000 = 21 kts. Coal: *normal*, 880 tons; *maximum*, 1330 tons. Oil: 130 tons.

*Notes.*—Laid down for German Navy at Wilhelmshaven, April, 1910; completed December, 1912. Taken over by Italy, 1920. 4 boilers are oil burning. Refitted for Colonial service, 1937.



1925 *Photo, Pucci*

## SAN GIORGIO (Castellammare D.Y. July, 1908).

Displacement: 9,232 tons. Complement, 726.

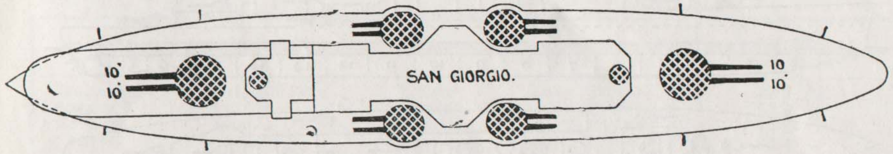
Dimensions : 430 (*pp.*) 462¼ (*o.a.*) × 69 × 22¾ (*mean*) 24 (*max.*) ft.

Guns :
- **4**—10 inch, 45 cal.
- **8**—7·5 inch, 45 cal.
- **10**—3 inch.
- **6**—3 inch, (AA.)
- **6** machine.
- **2** landing.

Torpedo tubes (18 inch) :
- 2 *submerged* (broadside).

Armour Terni :

| Armour | |
|---|---|
| 8″ Belt (amidships) ... | ▨ |
| 2¼″ Belt (ends) ▧ | ⁞ |
| 1¾″ & 1½″ Decks......... | |
| 7″ Lower deck redoubt | ▨<br>▩ |
| 8″ Main barbettes ... | ▩ |
| 5¼″ Turrets to these... | |
| 7″ Citadel ............... | |
| 6¼″ Secondary turrets | |
| 9¾″ Conning towers (4) | |

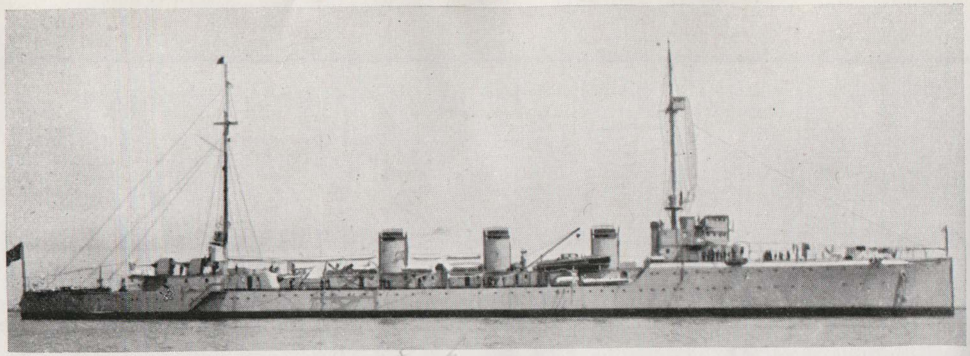


Machinery : (Ansaldo). 2 sets 4 cylinder triple expansion. 2 screws.
Boilers : 14 Blechynden. Designed H.P. : 18,000 = 22 kts.
Coal : 700/1,570 tons. Radius : 6,270 miles at 10 kts. ; 2,640 miles at 20 kts.
Laid down July, 1905. Completed July, 1910.
Trials.—H.P. 19,595 = 23·2 kts.

*Gunnery Notes.*—All guns electrically controlled. Central pivot mountings. Fore 10 inch, 31 feet above waterline; after 10 inch, 22 feet; 7·5 inch guns 22 feet above water.

A sister ship, *San Marco*, has been converted into a Wireless-controlled Target Ship, as noted on a later page.

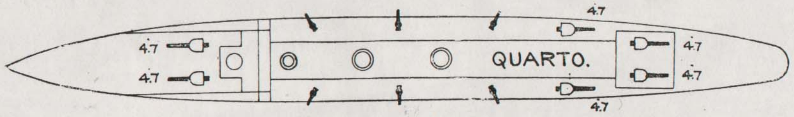
(Classed as **"Esploratore".**)



## QUARTO (Aug., 1911).

1934 *Photo.*

*Standard* displacement, 2903 tons. *Normal* displacement, 3442 tons. Complement, 322.
Length (*p.p.*), 413·4 feet. Beam, 42·1 feet. *Mean* draught, 13 feet. Length *over all*, 431¾ feet.



Guns :
- **6**—4·7 inch (50 cal.)
- **4**—3 inch AA.
- **4**—40 mm. AA.

Torpedo tubes (18 inch) :
- 2 *above water.*
- (200 mines.)

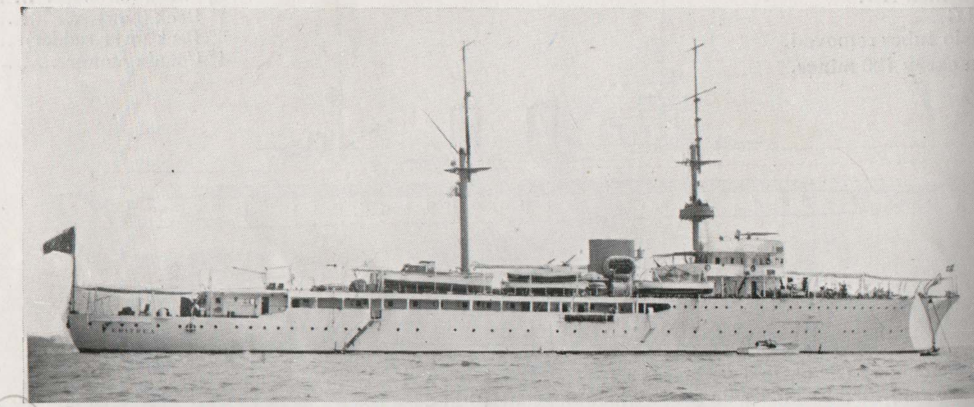
Armour :
- 1⅝″ Deck (amidships)
- ¾″ Deck (ends) ......
- 2″ C.T.

Machinery : Parsons turbine. 4 shafts. Boilers : 10 Blechynden oil-burning. Designed S.H.P. 25,000 = 28 kts. Fuel capacity : 550 tons oil = 2600 miles at 15 kts., or 1220 miles at 25·7 kts. Laid down Venice D.Y Oct., 1909. Completed Sept., 1912.

*General Notes.*—Carries 200 blockade mines. Designed by Engineer Col. Truccone. Boilers renewed at Fiume, 192

## Escort Vessel.

(Classed as *Nave Coloniale.*)



(For another view of this ship, see Addenda).

1937, *W. H. Davis, Esq.*

**ERITREA** (Castellammare, Sept. 20, 1936). Standard displacement, 2,172 tons (2,500 tons full loa
Dimensions : 251½ (*w.l.*), 274 (*o.a.*) × 43⅔ × 11½ feet (*mean* draught). Guns : **4**—4·7 inch
**4**—37 mm. AA., **2**—13 mm. AA. Fitted for minelaying. Machinery : 2 Fiat Diesels, wit
electric drive to 2 Marelli motors. H.P. : 8,000 = 20 kts.

*Notes.*—Ordered May 8, 1935, and laid down July 25 following. Designed by Engineer Major-General Icilio d'Esposit

• [illegible] 11 [illegible]
4 [illegible]
[illegible] — 7 [illegible]

## Following is revised classification of Italian light warships:

***Esploratori*:** High speed vessels of 3,000—2,000 tons.
***Cacciatorpediniere*:** Destroyers of less than 2,000 and more than 700 tons.
***Torpediniere*:** Torpedo Boats less than 700 and more than 200 tons.
***Torpediniere Costiere*:** Under 200 tons.

Certain older destroyers still retain the nominal class of *Esploratori*, in spite of this revision.

## 222* + *52*† Torpedo Craft.

| *Summary.* | | *†Building.* | **Completed.* |
|---|---|---|---|
| DESTROYERS (Cacciatorpediniere) | ... | 12 | 65 |
| TORPEDO BOATS (Torpediniere) | ... | 16 | 50 |
| COASTAL BOATS (Torpediniere Costiere) | | — | 2 |
| MOTOR T.B. (M.A.S.) | .. | 20 | 100 |
| ESCORT VESSELS (Avvisi Scorta) | .. | 4 | 5 |

The following list of distinctive letters, painted on bows of destroyers, torpedo boats and allied types, has been furnished officially to "Fighting Ships" by the courtesy of the Ministry of Marine. Apparent duplication of certain letters is due to the fact that vessels in question differ noticeably in appearance. *Grecale* class has had no letters assigned so far.

| | |
|---|---|
| A B | Abba |
| A C | Acerbi |
| A D | Audace |
| A D | Andromeda |
| A L | Aquilone |
| A L | Aldebaran |
| A M | Ardimentoso |
| A S | Astore |
| A T | Altair |
| B F | Bafile |
| B O | Baleno |
| B R | Borea |
| B S | Bassini |
| B T | Battisti |
| C A | Carini |
| C D | Castelfidardo |
| C E | Cantore |
| C E | Climene |
| C F | Confienza |
| C G | Cigno |
| C H | Chinotto |
| C I | Cascino |
| C L | Cairoli |
| C M | Calatafimi |
| C N | Canopo |
| C O | Centauro |
| C P | Crispi |
| C S | Cassiopea |
| C S | Cosenz |
| C T | Castore |
| C T | Curtatone |
| C Z | Cortellazzo |
| D G | Del Greco |
| D R | Dardo |
| D Z | Dezza |
| E R | Euro |
| E S | Espero |
| F B | Fabrizi |
| F G | Folgore |
| F N | Fulmine |
| F R | Freccia |
| F T | Farinati |
| G D | Grado |
| G V | Giovannini |
| I D | Indomito |
| I P | Impavido |
| I R | Irrequieto |
| I S | Insidioso |
| L F | La Farina |
| L M | La Masa |
| L P | Lampo |
| M A | Manin |
| M B | Monzambano |
| M D | Medici |
| M F | Monfalcone |
| M N | Montanari |
| M S | Missori |
| M T | Mosto |
| N B | Nembo |
| N C | Nicotera |
| N L | Nullo |
| N V | Nievo |
| O R | Orsini |
| O T | Ostro |
| P A | Papa |
| P E | Pepe |
| P L | Pilo |
| P O | Poerio |
| P R | Prestinari |
| P S | Perseo |
| P T | Palestro |
| R C | Ricasoli |
| R S | Rossarol |
| S A | Saetta |
| S E | Sella |
| S F | Schiaffino |
| S G | Sagittario |
| S I | Sirio |
| S L | Solferino |
| S M | San Martino |
| S O | Stocco |
| S P | Spica |
| S R | Sirtori |
| S T | Strale |
| S U | Sauro |
| T B | Turbine |
| T U | Turr |
| V G | Vega |
| V T | Vitturi |
| Z F | Zeffiro |

(*All fitted for Minelaying*).

## 4 12 Aviere Class.

остались 4 шт.

~~*Building*~~

6 *Odero-Terni-Orlando* boats: **Aviere** (Sept. 19, 1937), **Artigliere, Ascaro, Camicia Nera** (Aug. 8, 1937), **Corazziere**, **Pontiere.**

2 *Riuniti, Ancona* boats: **Alpino, Fuciliere.**

2 *Riuniti, Palermo* boats: **Bersagliere, Granatiere.**

2 *Tirreno* boats: **Carabiniere, Lanciere.**

Displacement: 1,620 tons (*standard*), about 1,900 tons full load. Complement, 165. Dimensions: 339 (*w.l.*), 350 (*o.a.*) × 38⅓ × 10¾ feet (*mean*). Guns: **4**—4·7 inch, 50 cal., **6**—37 mm. AA., **4**—13 mm. AA. Torpedo tubes: **6**—21 inch (tripled). Machinery: 2 sets geared turbines (Parsons in O.T.O. boats, Belluzzo in others). 2 shafts. S.H.P.: 48,000 = 39 kts. 3 boilers of 3-drum type. Oil fuel: 300 tons. All laid down Jan.—May, 1937.

## 4 Oriani Class.

2

(Will resemble *Grecale* type, but with bigger bridge and funnel set further aft.)

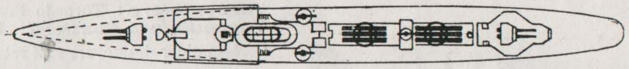
4 *Odero-Terni-Orlando* type: **Vittorio Alfieri** (Dec. 20, 1936), **Giosue Carducci** (Oct. 28, 1936), **Vincenzo Gioberti** (Sept. 19, 1936), **Alfredo Oriani** (July 30, 1936). All ordered 1935. *Oriani* laid down Oct. 1935, others early in 1936. *Standard* displacement: 1,498 tons (about 1,800 tons full load). Dimensions: 334½ (*w.l.*), 343 (*o.a.*) × 33½ × 10 feet (*mean*), 12 ft. (*max.*). Guns: **4**—4·7 inch, 50 cal., **4**—37 mm. AA., **4**—13 mm. AA. Torpedo tubes: **6**—21 inch (tripled). Machinery: 2 sets Parsons geared turbines 2 shafts. S.H.P.: 48,000 = 39 kts. 3 boilers of 3-drum type. Oil fuel: 300 tons. Complement, 157.

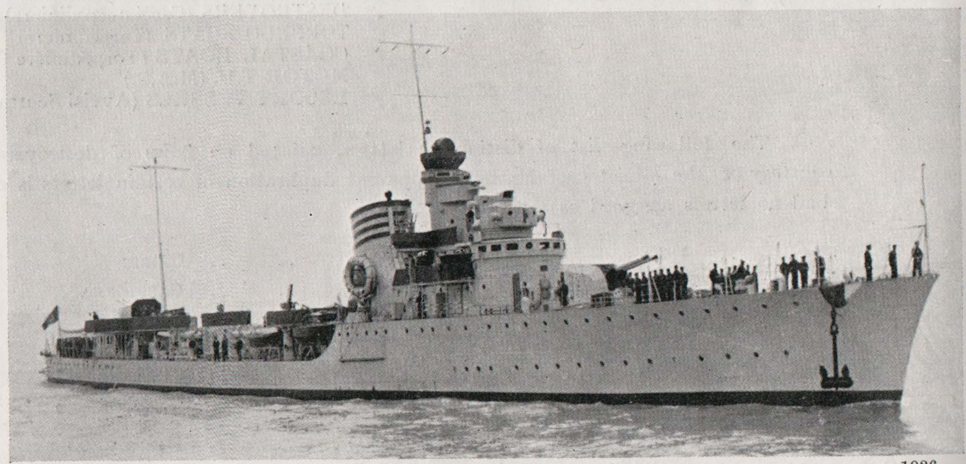
4) – фр D'Estaing 1715т 1 торп. апп 533

Тип Aliseo 40-41г. 4-136 1690т 39уз 5-120
10-20 6-533
остались
Aliseo
Ariete
Legionario — фр. Duchaffault
Mitragliere — фр Furie La Graviere (8-533)
Velite

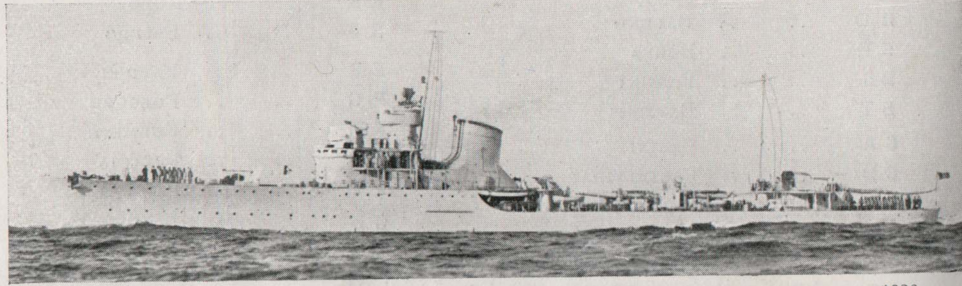
## 4 Grecale class.

1





GRECALE. 1936.



LIBECCIO. 1936.

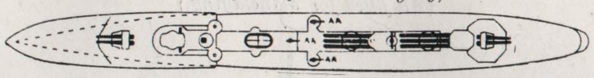
2 *Riuniti, Ancona* boats:—**Maestrale** (Sept. 1934), **Grecale** (June 17th, 1934).

2 *Tirreno* boats:—**Libeccio** (July 7th, 1934), **Scirocco** (April 22nd, 1934).

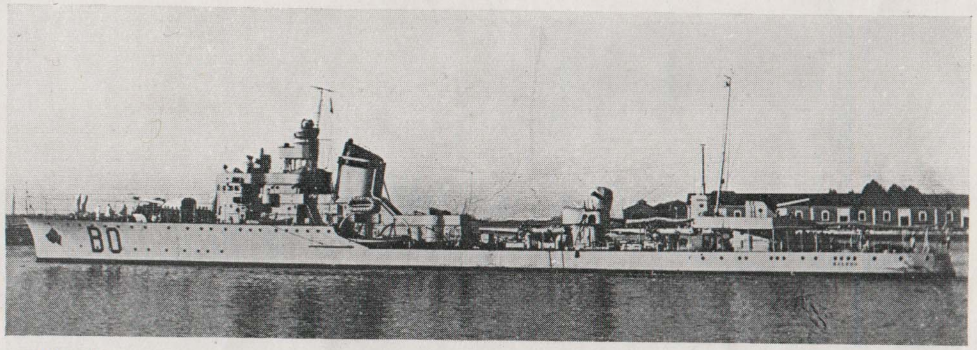
Displacement: 1,449 tons. Complement, 153. Dimensions: 333⅓ (*w.l.*), 350 (*o.a.*) × 33⅓ × 10 feet. Guns: **4**—4·7 inc 50 cal., **4**—37 mm. AA., **4**—13 mm. AA. Tubes: **6**—21 inch. Machinery: 2 sets Parsons geared turbines. 2 shaf S.H.P. 44,000 = 38 kts. 3 boilers of 3-drum type. Oil fuel: 250 tons.

Built under 1930 Programme. Laid down end 1931 and completed 1934. Are enlarged editions of the *Dardo* class wi the same general design.

*(All fitted for Minelaying).*



## 4 Folgore Class



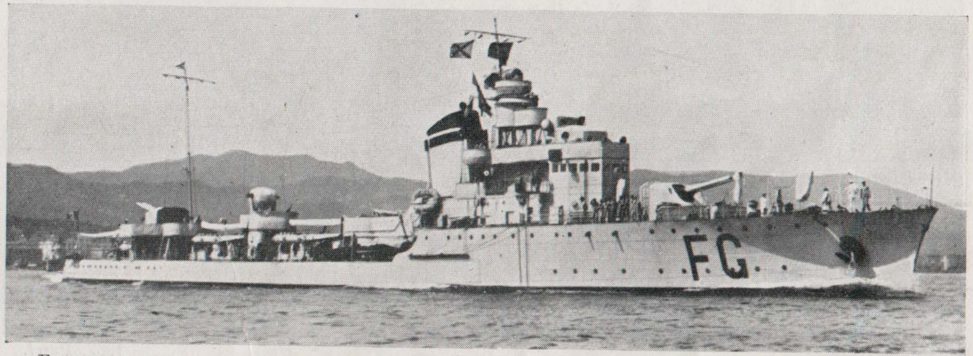
BALENO.

1935, *Bassan.*

2 *Partenopei* boats: **Folgore** (Apl. 26th, 1931), **Lampo** (July 26th, 1931).

2 *Quarnaro* boats: **Baleno** (Mar. 22nd, 1931), **Fulmine** (Aug. 2nd, 1931).

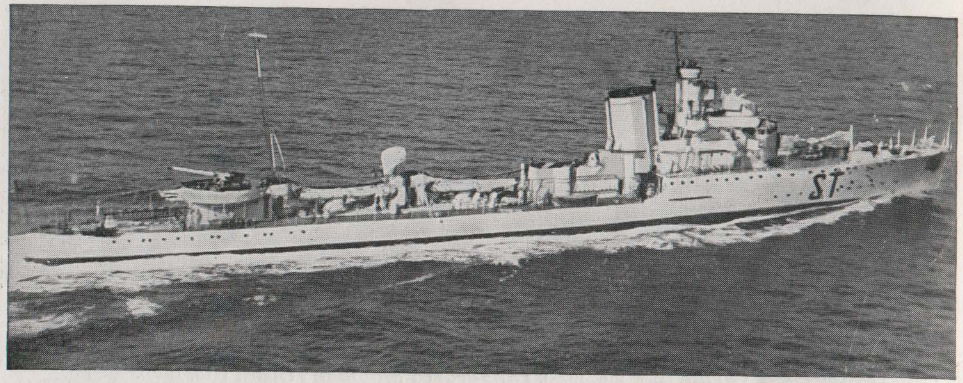
Displacement: 1,220 tons (*standard*). Dimensions: 309 (*pp.*), 315¼ (*o.a.*) × 30½ × 10¼ feet.
Guns: 4—4·7 inch, 50 cal., 4—37 m/m. AA., 4—13 m/m. AA. Tubes: 6—21 inch, tripled.
Machinery: 2 sets Belluzzo geared turbines. 2 shafts.
S.H.P. 44,000 = 38 kts. 3 boilers of 3-drum type.
Oil: 225 tons. Complement, 150.
All ordered 1929, laid down 1930 and completed 1932.



FOLGORE.

1937, *Official*

## 4 Dardo Class



STRALE.

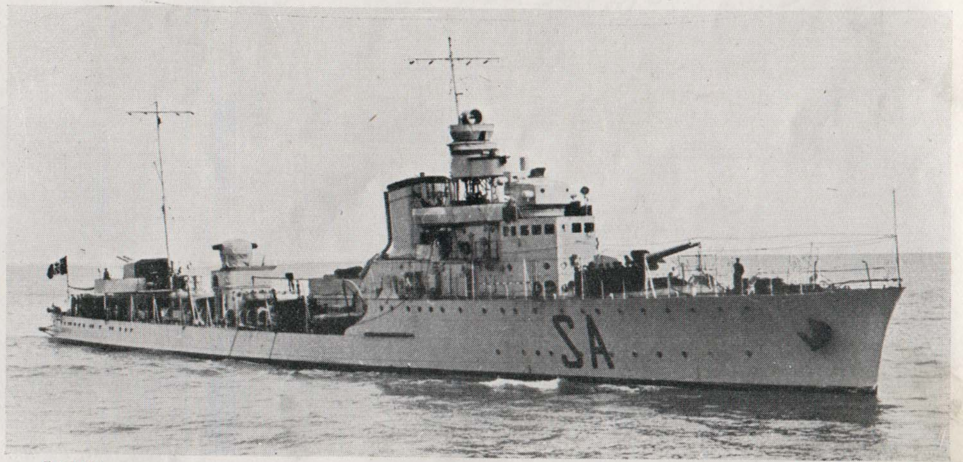
1932 *Photo, Official.*

2 *Odero* boats: **Dardo** (Sept. 6th, 1930), **Strale** (Mar. 26th, 1931).

2 *Tirreno* boats: **Freccia** (Aug. 3rd, 1930), **Saetta** (Jan. 17, 1932).

Displacement: 1,206 tons *standard*, 1,450 tons *normal*. Dimensions: 302½ (*pp.*), 315 (*o.a.*) × 32 × 9½ feet.
Guns: 4—4·7 inch, 50 cal., 4—37 m/m. AA., 4—13 m/m. AA. Tubes: 6—21 inch, tripled.
Machinery: 2 sets Parsons geared turbines. S.H.P. 44,000 = 38 kts. 3 boilers of 3-drum type. Oil fuel: 225 tons. Complement, 150. All ordered 1928. *Freccia* completed 1931, others 1932.

*Dardo* class.—As first designed these boats had two funnels and a straight bow, resembling *Turbine* in profile. During construction the design was changed, the uptakes being trunked into one stack, and the bridge and upperworks modified, while the bows were given an overhang. After launching further modifications were made, the tripod foremast was abolished, control platforms and a searchlight tower were added to the bridgework and the funnel raised.

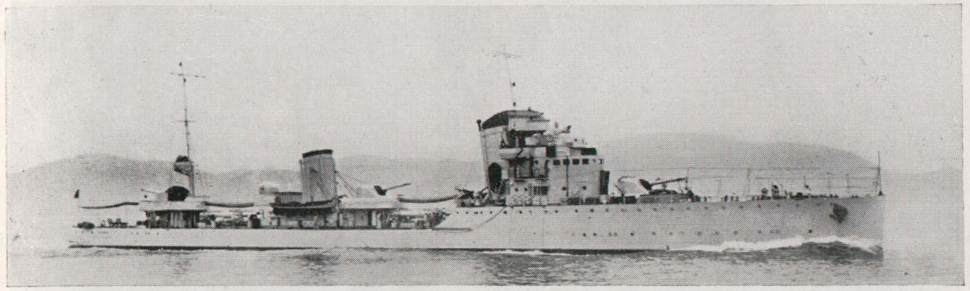


SAETTA

*Added* 1937, *Official.*

(*All fitted for Minelaying.*)

## 12 "Navigatori" class

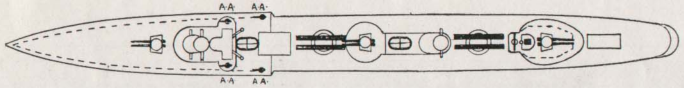


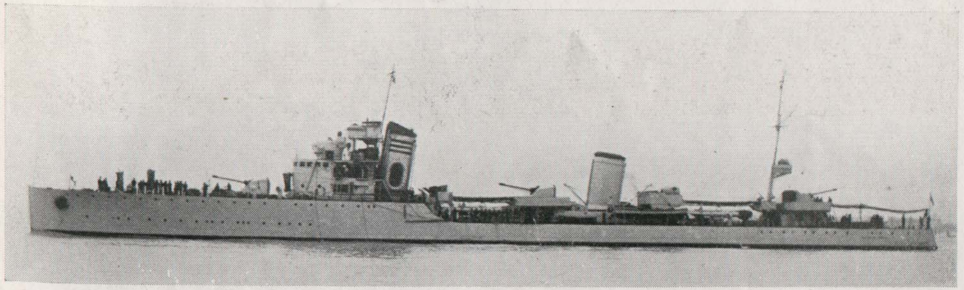
A. Pigafetta. 1934 *Photo, Pucci.*

2 *Ansaldo* boats : **Luca Tarigo** (Dec. 9th, 1928), **Lanzerotto Malocello** (March 14th, 1929).
2 *Odero* boats : **Ugolino Vivaldi** (Jan. 9th, 1929), **Antoniotto Usodimare** (May 12th, 1929).
2 *Tirreno* (Riva Trigoso) boats : **Leone Pancaldo** (Feb. 6th, 1929), **Antonio da Noli** (May 21st, 1929).
2 *Riuniti* (Ancona) boats : **Emanuele Pessagno** (August 12th, 1930), **Nicoloso da Recco.**
4 *Quarnaro* boats : **Nicolo Zeno** (Aug. 11, 1928), **Giovanni da Verazzano** (Dec. 15th 1928), **Alvise da Mosto.** (July 1st, 1929), **Antonio Pigafetta.** (Nov. 10th, 1929.)

Displacement : 1,628 tons, *standard ;* 2,010 tons *deep load.* Dimensions : 352 (*o.a.*), 351 (*p.p.*) × $33\frac{1}{2}$ × $16\frac{3}{4}$ feet. Guns : **6**—4·7 inch, 50 cal., **4**—37 m/m. AA., **8**—13 m/m. AA. Tubes : **4**—21 inch, paired. Some carry 50 mines.
Machinery and boilers : 2 Parsons turbines and 4 Odero boilers in *L. Tarigo, L. Malocello, U. Vivaldi, A. Usodimare, L. Pancaldo, A. da Noli, E. Pessagno.* 2 Belluzzo turbines and 4 modified Yarrow boilers in *N. Zeno, G. da Verazzano, A. Pigafetta, A. da Mosto ;* 2 Tosi turbines and 3 boilers of 3-drum type in *N. da Recco.*
S.H.P. 50,000 = 38 kts.
On trials, *A. da Mosto* attained speeds of from 44 to 45 kts. with 71,000 H.P. Complement, 185.

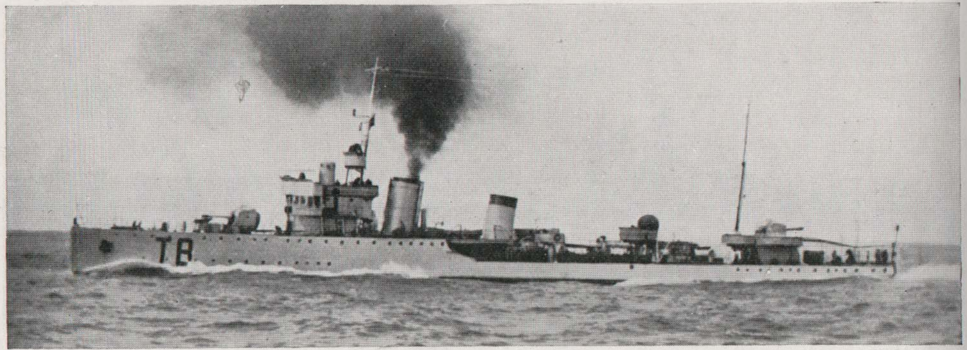
*Notes.*—All ordered 1926, and laid down in 1927, except last pair, which were begun in 1928.





A. da Mosto. *Added* 1937, *Bassan.*

## 8 "Turbine" Class.

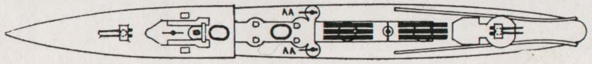


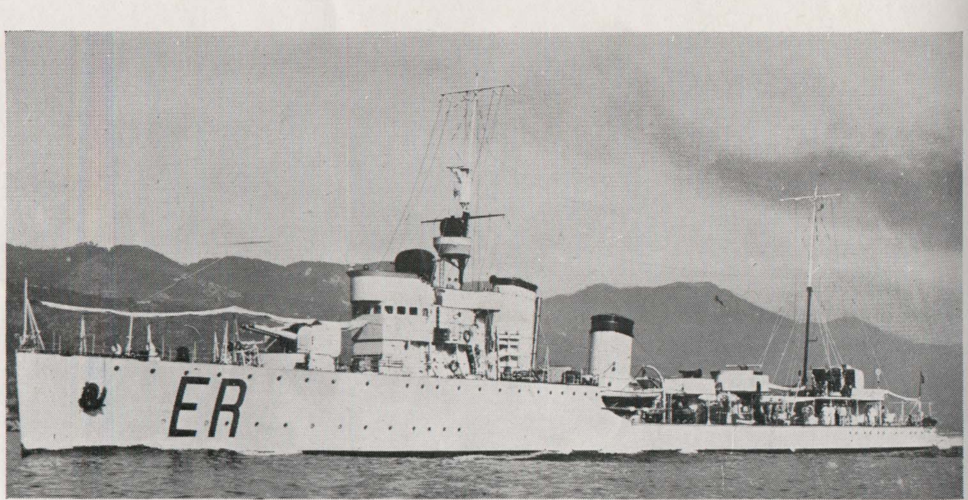
Turbine. 1931 *Photo*

4 *Ansaldo* boats: **Borea** (Jan. 1927), **Espero** (Aug. 31st,1927), **Ostro** (Jan. 2nd, 1928), **Zeffiro** (27th May, 1927). 2 *Odero* boats: **Aquilone** (Aug. 3rd, 1927), **Turbine** (21st April, 1927). 2 boats by Cant. del Tirreno, Riva Trigoso: **Euro** (July 7th, 1927), **Nembo** (27th Jan., 1927).

All ordered or laid down 1924-25. Displacement: first four 1,073 tons. Remainder 1,092 tons. Dimensions : $299\frac{1}{2}$ (*p.p.*), $307\frac{1}{2}$ (*o.a*) × $30\frac{1}{2}$ × $10\frac{3}{4}$ feet. Parsons geared turbines. 3 Express boilers, with superheaters. S.H.P. 40,000=36 kts. Guns : **4**—4·7 inch, 45 cal., **4**—37 mm. AA., **2**—13 mm. AA. Tubes : **6**—21 inch, in triple deck mountings. Oil : 270 tons. Complement, 142.

Mean speed on trials : *Euro* 38·9 ; *Aquilone* 39·5 ; *Borea* 36·5 ; *Espero* 38·4 ; *Nembo* 38·4 ; *Turbine* 39·6.



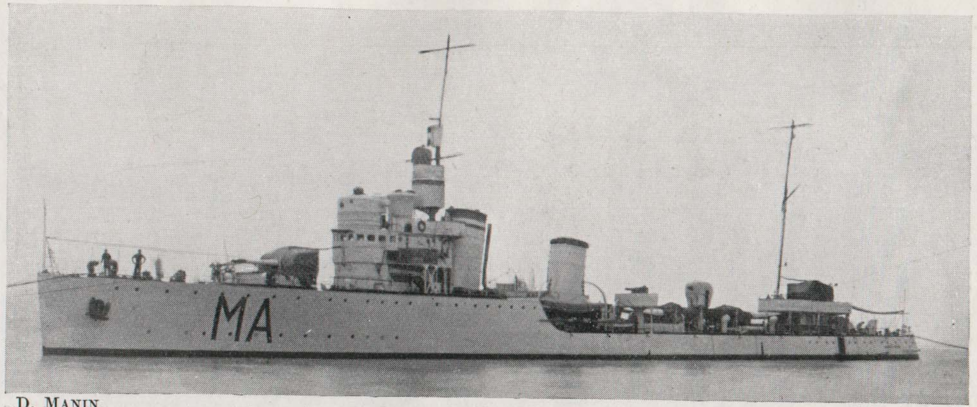


Euro. 1937, *Pucci.*

7

## 4 "Sauro" class.

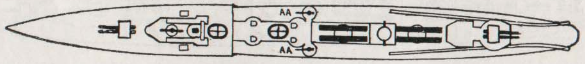
(*All fitted for Minelaying*).



D. MANIN. 1935, *Bassan.*

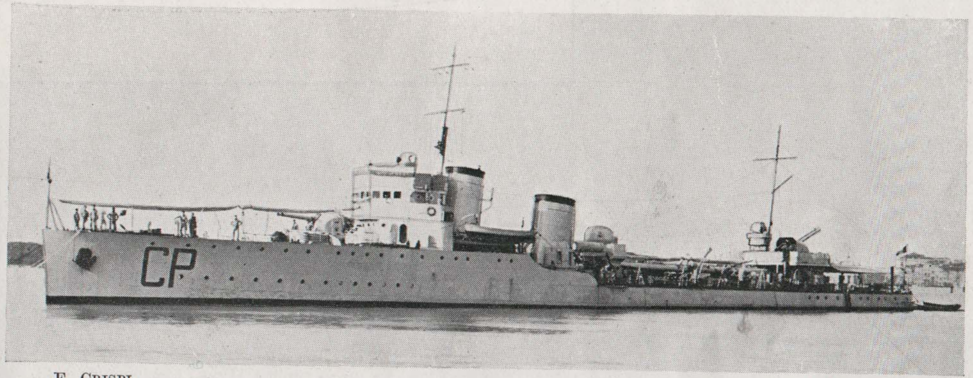
2 *Odero* boats: **Cesare Battisti** (11th Dec., 1926), **Nazario Sauro** (12th May, 1926).
2 *Quarnaro* boats: **Daniele Manin** (24th June, 1925), **Francesco Nullo** (Oct., 1925). All designed by Odero and laid down 1924. Displacement: 1058 tons *standard*. Dimensions: $295\frac{3}{4} \times 30\frac{1}{2} \times 10\frac{1}{2}$ feet. Parsons geared turbines. 3 Express oil-fired boilers, with superheaters. S.H.P. 36,000 = 35 kts. Guns: **4**—4·7 inch, **4**—37 mm. AA., **2**—13 mm. AA. Tubes: **4**—21 inch, in twin deck mountings. 30 mines carried. Oil: 230 tons. Complement, 142.

Mean trial figures: *Sauro* 37,000 = 36·5; *Battisti* 41,280 = 37; *Nullo* 45,000 = 37; *Manin* 41,800 = 36·8.



*Sauro* and *Sella* classes

## 4 "Sella" class.

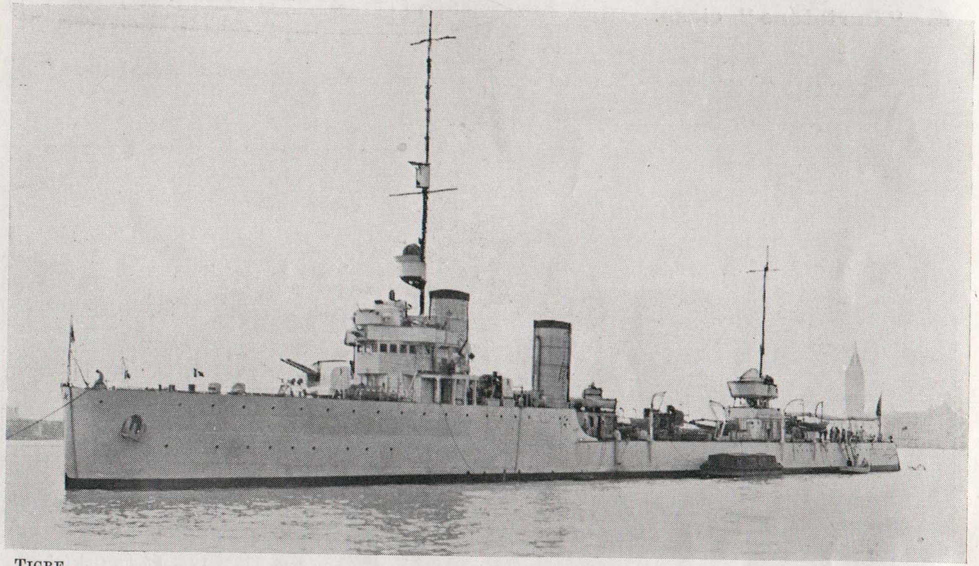


F. CRISPI. 1935, *Bassan.*

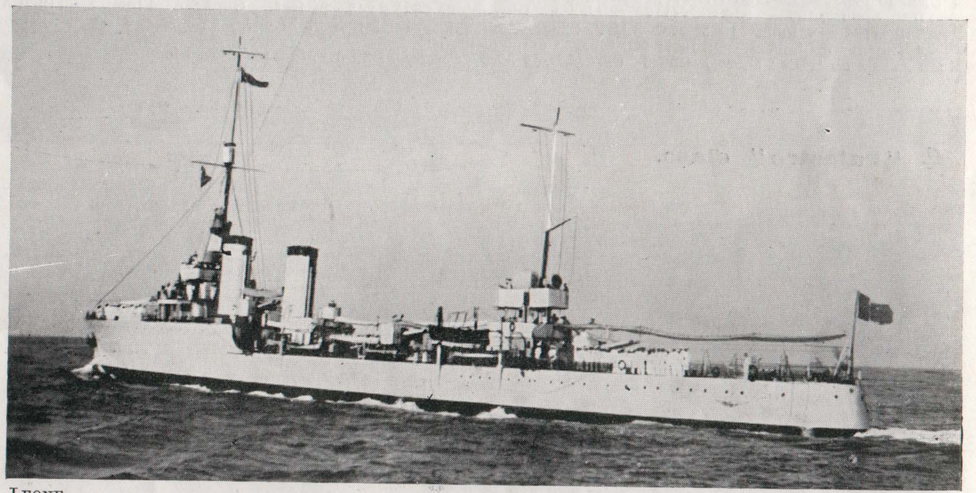
4 *Pattison* type: **Francesco Crispi** (Oct., 1925), **Giovanni Nicotera** (24th June, 1926), **Bettino Ricasoli** (29th Jan., 1926), **Quintino Sella** (25th April, 1925). All laid down 1922-23. 935 tons *standard*. Dimensions: $275\frac{1}{2} \times 27 \times 9\frac{3}{4}$ feet. Guns: **4**—4·7 inch (45 cal.), **2**—40 m/m. AA., **2** M.G. Torpedo tubes: **4**—21 inch in two pairs. Machinery: Turbines (Belluzzo in *Crispi*, Parsons in others). S.H.P. 36,000 = 35 kts. 3 Thornycroft boilers. Oil fuel: 200 tons *normal*, 255 tons *max.* Radius: 2,750 miles at 15 kts. Complement, 120.

**Mean speeds on trials:** *Crispi* 38·6, with H.P. 35,540, 39·4 *max.*; *Sella* 37·3, with H.P. 35,090, 38·6 *max.*

## 3 Leone Class.



TIGRE. 1935, *Bassan.*

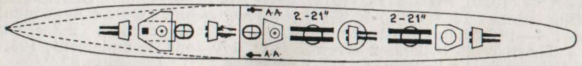


LEONE. *Added* 1936.

3* *Ansaldo* type: **Leone, Pantera, Tigre** (1923). 1526 tons (*standard*), 2283 tons (*full load*). Dimensions: 372 (*o.a.*), $359\frac{1}{2}$ (*p.p.*) × 34 × 11·5 feet (*mean*). Guns: **8**—4·7 inch (45 cal.), **2**—40 mm. AA., **4** M.G. Tubes: **4**—21 inch. Designed S.H.P.: 40,000 = 34 kts. (Trials, 50,000 = 35 kts.). Best recent speeds, 33 kts. or less. 2 Parsons turbines (geared). 4 Yarrow oil-burning boilers. 2 screws. Oil fuel: 200 tons *normal*, 400 tons *max.* Carry 60 mines (*normal* stowage), or 100 (*maximum*). Complement, 201.

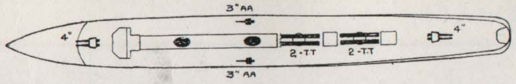
**Leopardo* and *Lince* cancelled.

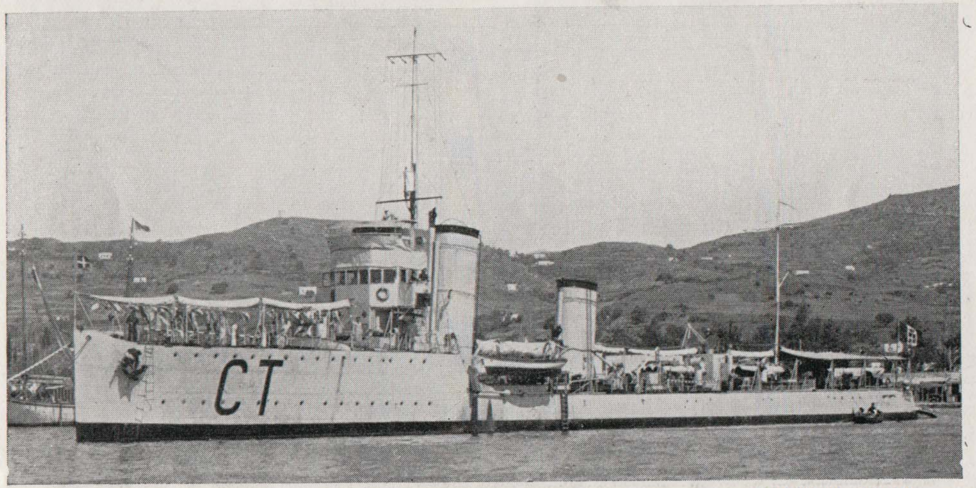
*Notes.*—Internally these ships are most elaborately fitted. Each is equipped with a different system of fire-control—British, Italian and German respectively. 4·7 inch guns are paired very closely—only 1 foot apart. *Max.* elevation: 30°. Special apparatus for smoke screen production is fitted on starboard quarter of each. The distinctive appearance conferred by the upright funnels, of unequal height, and straight stem is a noteworthy feature of these vessels.



(*All fitted for Minelaying*)

## 4 "Curtatone" class.



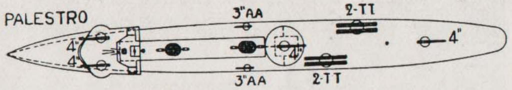


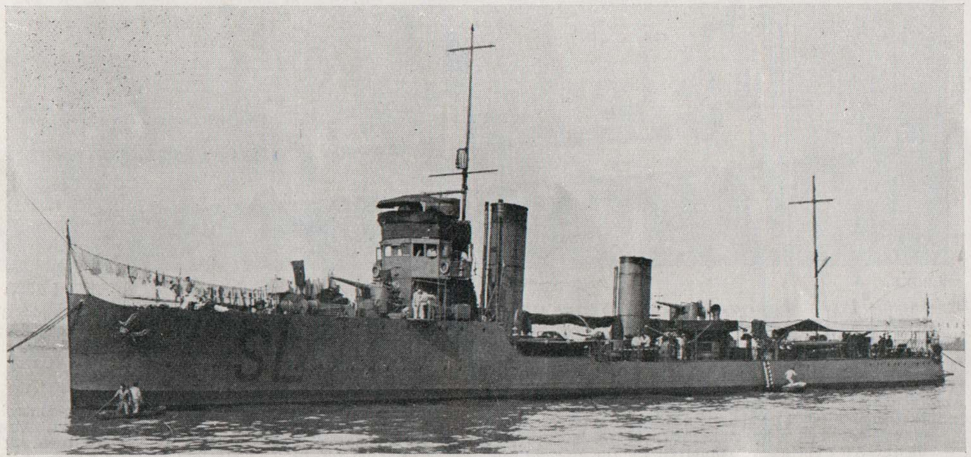
CURTATONE. 1934 *Photo, Official.*

4 *Orlando* type: **Calatafimi** (17th March, 1923), **Castelfidardo** (1923), **Curtatone** (1922), **Monzambano** (6th August, 1923). 966 tons (1190 *full load*). Dimensions $262\frac{1}{2} \times 24\frac{2}{3} \times 8\frac{1}{2}$ feet. Guns: 4—4 inch, 2—3 inch AA. Tubes: 4—18 inch. 10 Mines. S.H.P. 22,000 = 32 kts. Trials: H.P. 27,500 = 34 kts. 2 Zoelly turbines. 4 Thornycroft boilers. Oil fuel: 200 tons. Complement, 105.

Mean speeds on trials: *Curtatone* 36·6 *Castelfidardo* 35·5 *Calatafimi* 33·3 *Monzambano* 33·5.

## 4 "Palestro" class.



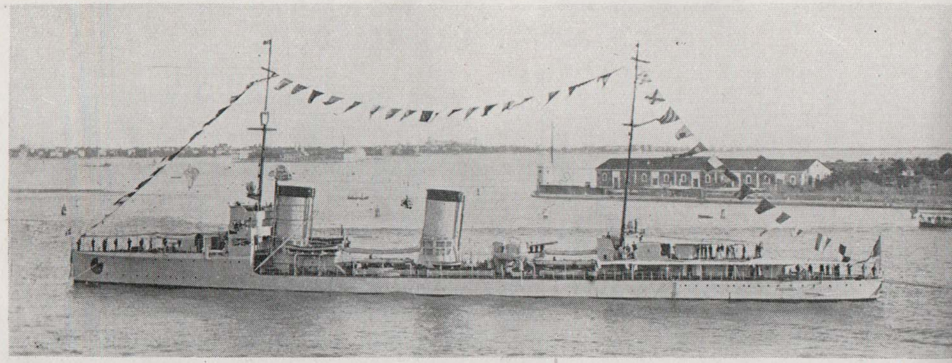


SOLFERINO. 1935, *Bassan.*

4 *Orlando* type: **Confienza** (1920), **Palestro** (1919), **San Martino** (1920), **Solferino** (1920). 862 tons *standard* (1076 *full load*). Dimensions: $256\frac{1}{2}$ (*p.p.*) × $24\frac{2}{3}$ × $8\frac{1}{2}$ feet (*mean*). Guns: 4—4 inch, 45 cal., 2—3 inch, 40 cal. AA., 4 M.G. Tubes. 4—18 inch in twin deck mountings. 10 mines carried. 2 Zoelly turbines. Designed S.H.P. 22,000 = 32 kts. 4 Thornycroft boilers. 2 screws. Oil: 170 tons. Complement, 105.

Mean speeds on trials: *Palestro* 32·4; *Solferino* 31·9; *S. Martino* 31·1; *Confienza* 32·2.

## 2 Ex-German Boats

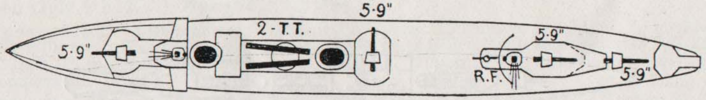


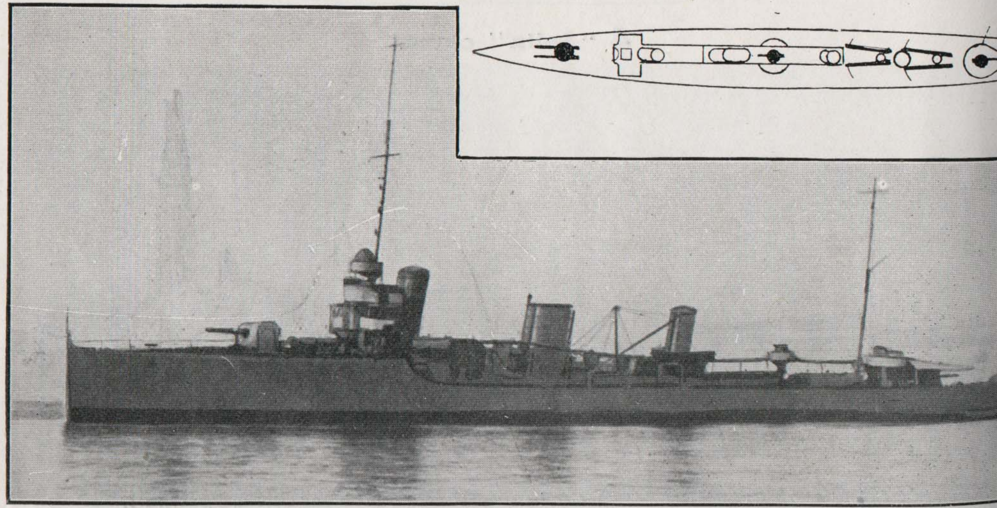
1935, *Bassan*

1 *Vulkan* boat: **Premuda** (ex-German *V* 116, 1917). Displacement: 1,526 tons. Dimensions: $334\frac{1}{2}$ (*p.p.*), (*o.a.*) × $36\frac{3}{4}$ × $9\frac{1}{4}$ feet (*mean*). Guns: 4—5·9 inch, 42 cal., 4—40 mm. AA. Tubes: 2—18 inch. Fitted for mi laying. Machinery: A.E.G.—Vulkan turbines. Boilers: 4 "Marinetype" (Schulz-Thornycroft). S.H.P.: 50, = 34 kts. 2 screws. Oil fuel: 280 tons *normal*, 720 tons *maximum*. Complement, 154. Carries 40 mines.

*Notes.*—German "1916 Design" boat, taken over by Italy, 1920.

PREMUDA



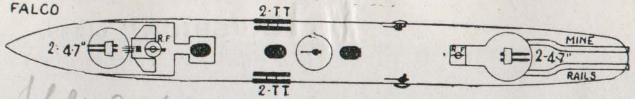


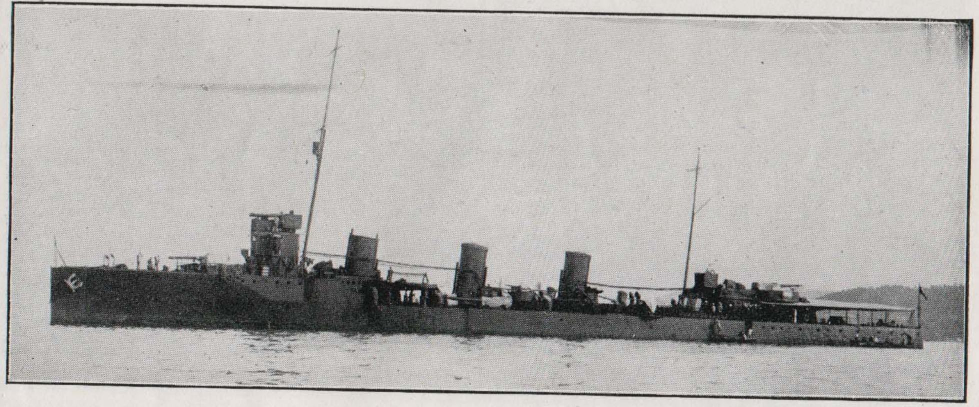
C. ROSSAROL. 1925 *Photo, Bass*

1 *Blohm & Voss* boat: **Cesare Rossarol** (ex-German *B 97*, 1914). 745 tons. Dimensions: (*w.l.*), $321\frac{1}{2}$ (*o.a.*) × $30\frac{2}{3}$ × $6\frac{1}{3}$ *mean*, $9\frac{1}{4}$ *max*. Guns and tubes: 3—4·7 inch, 2—3 inch AA., 2 M.G., AA., 4- inch tubes, in twin mounts. Fitted for minelaying. Parsons turbines 2 Shafts. 3 Schulz-Thornycroft boil Designed S.H.P. 30,000 = 32·5 kts. Oil: 150 tons *normal*, 520 tons *maximum* = 2,620 miles at 20 kts. Ta over by Italy, 1920. Complement, 114. Carries 24 mines.

## 2 Aquila class.

передать 39г Испании





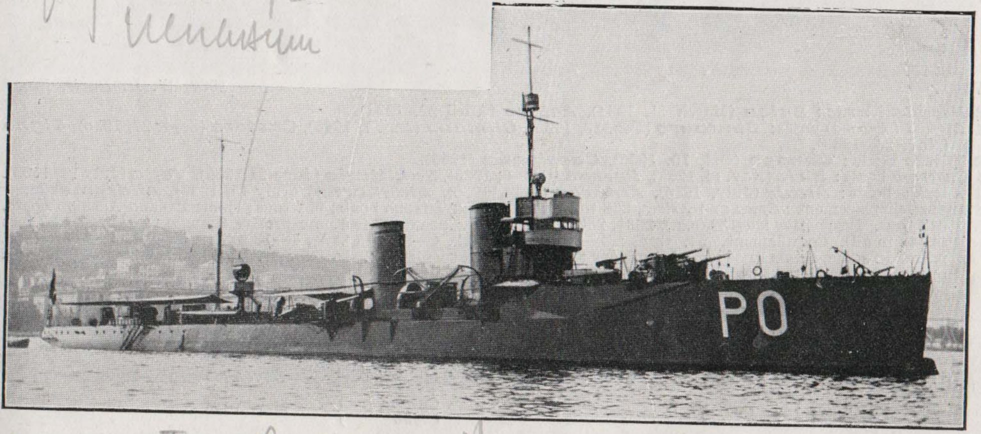
AQUILA. Velasco Ceuta Velasco Melilla 1925 *Photo, Pucci.*

*Pattison* type: **Falco** (1919), 1,286 tons; **Aquila** (1916), 1,407 tons (*standard*). Dimensions: 308·5 (*p.p.*), × 30·8 × 10·7 feet (*mean*) in *Aquila*, 9¼ in *Falco*. Guns: **4**—4·7 inch, 45 cal., **2**—3 inch, 40 cal. AA., **2** M.G. Tubes: **4**—18 inch, 50 mines. Designed S.H.P.: 40,000 = 34 kts. 2 Tosi turbines. 5 Thornycroft oil-burning boilers. 2 screws. Endurance: 1,700 miles (15 kts.), 380 miles (full speed). Oil: 120 tons *normal*, 260 tons *maximum*. Complement, 150.

*Note.*—These two destroyers were to have been built for the Rumanian Navy. Appropriated for Italian Navy on outbreak of war with Austria-Hungary. Two boats, *Nibbio, Sparviero,* sold back to Rumania, 1920. Trials: 39,800 = 35·5 kts.

## 2 "Poerio" class

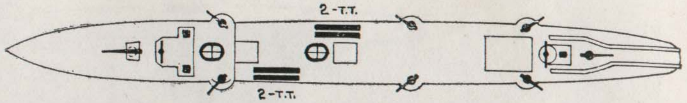
передать 39г Испании

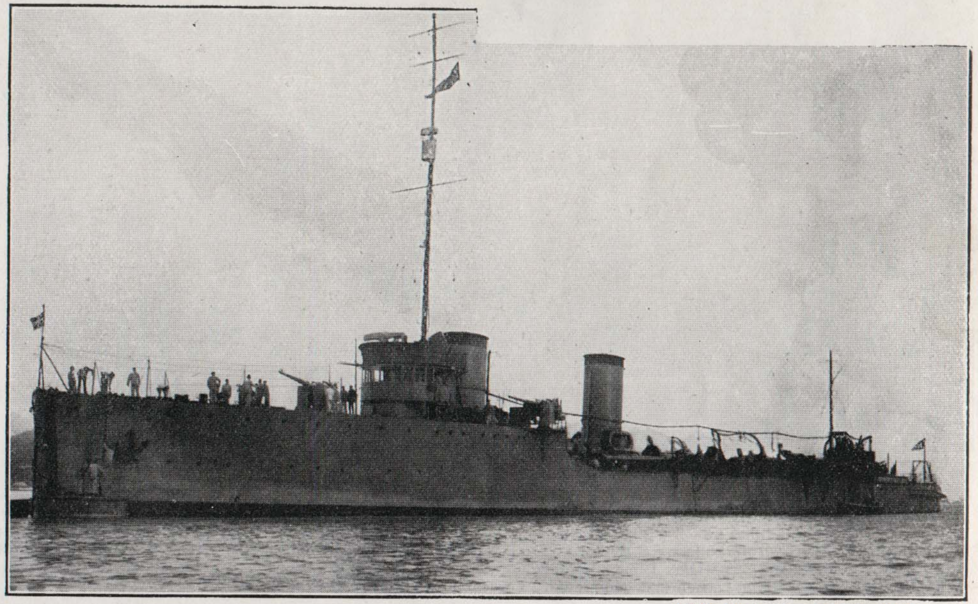


A. POERIO. Teruel Huesca 1925 *Photo, Pucci.*

*Ansaldo* type: **Alessandro Poerio** (1914), **Guglielmo Pepe** (1914). 845 tons (1028 *deep load*). Dimensions: 272·6 (*p.p.*) × 26·3 × 9·3 feet. Armament: 5—4 inch. 2—40 m/m. AA., 2 M.G 2—18 inch tubes. Parsons turbines. 2 shafts. H.P. 20,000 = 32 kts. 3 Yarrow oil-burning boilers. Oil: 200 tons. Endurance: 2930 miles (15 kts.). 745 miles full (speed). *Trials*: 33·4 kts. Fitted as Minelayers. Complement, 137.

## 2 Mirabello class.



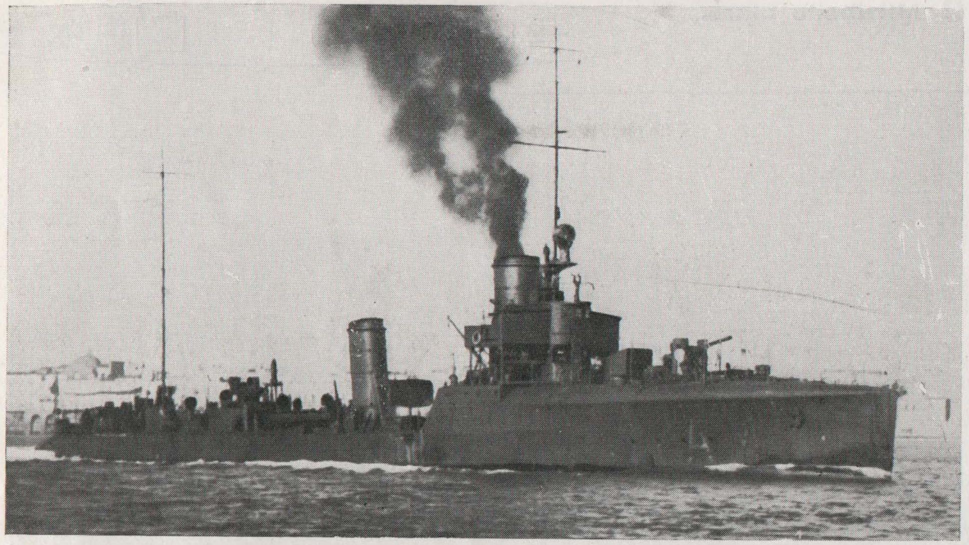


1926 *Photo, Capitan M. Mille.*

Height of Fore-funnel reported to have been increased as in *Leone* class.

2 *Ansaldo* type: **Carlo Mirabello** (1914), **Augusto Riboty** (1915). 1383 tons. Dimensions: 331·4 (*p.p.*) × 32 × 10·6 feet (*mean*). Guns: **8**—4 inch, **2**—40 mm. AA., **2** M.G. Tubes: **4**—18 inch. Carry 100 mines. Designed S.H.P. 35,000 = 35 kts. Made 33·75 and 35·03 kts. on *trials* respectively. 4 Yarrow oil-burning boilers. 2 Parsons geared turbines. 2 screws. Oil fuel; *normal* 200 tons, *maximum* 350 tons. Endurance: 2840 miles (15 kts.), 500 miles (full speed). Complement, 145.

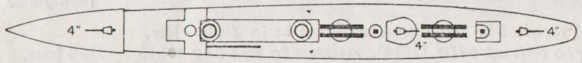
## 1 Ex-German Destroyer.



1930 *Photo, Official.*

1 *Schichau* boat: **Ardimentoso** (ex-German *S63*, 1915). 804 tons (1050 *deep load*). Dimensions: 272⅓ × 27¼ × 9¼ feet. Guns and tubes: 3—3·9 inch, 2—40 m/m. AA., 2 M.G.; 4—18 inch tubes, in twin mountings. Parsons turbines. 3 Thornycroft boilers. S.H.P. 24,000 = 33 kts. Oil: 162 tons *normal*, 280 tons *max.* = 1,960 miles at 20 kts. Taken over by Italy, 1920. Complement, 85.

Was fitted to carry 24 mines when first completed. Forecastle well deck built-in, circa 1928.



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## Torpedo Boats.

## 16 "PARTENOPE" Class.

Will resemble *Vega* in appearance.

4 *Napoletani* boats: **Partenope** (Dec., 1937), **Polluce** (Oct. 24, 1937), **Pallade** (Nov., 1937), **Pleiadi** (Sept. 5, 1937).

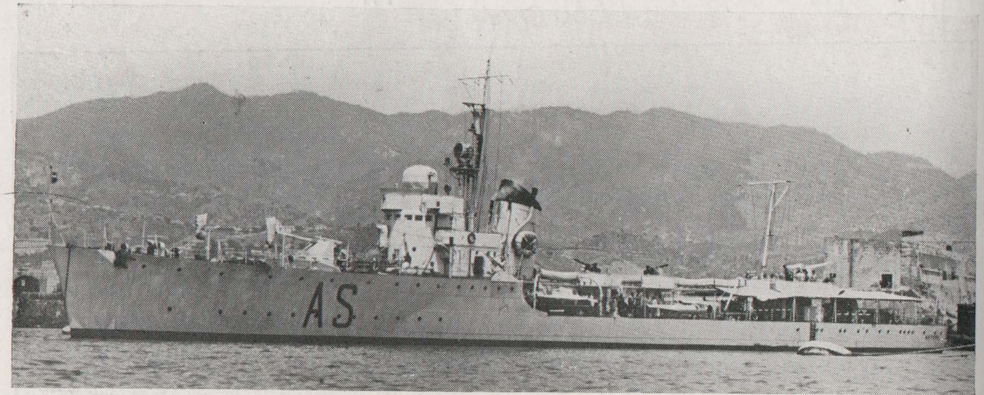
4 *Quarnaro* boats: **Libra** (Oct. 3, 1937), **Lince, Lira** (Sept. 12, 1937), **Lupo** (Nov. 7, 1937).

8 *Ansaldo* boats: **Airone, Alcione, Aretusa, Ariel, Calipso, Calliope, Circe, Clio.**

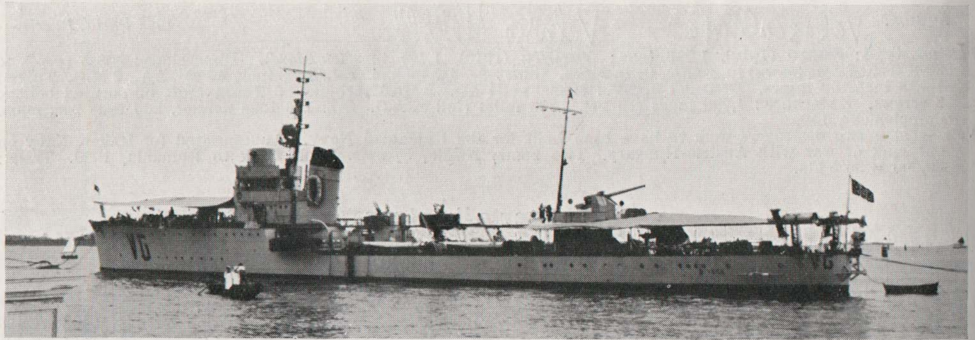
*Standard* displacement: 679 tons. Complement, 94. Dimensions: 254⅔ (*w.l.*), 267 (*o.a.*) × 26 × 7¾ feet (*mean*). Guns: 3—3·9 inch, 4—37 mm. AA., 4—13 mm. AA. Tubes: 4—18 inch, paired. Fitted for minelaying. Machinery: 2 sets Tosi geared turbines. 2 shafts. S.H.P.: 19,000 = 34 kts. 2 boilers of 3-drum type. All laid down Oct., 1936—March, 1937.

## 16 "SPICA" class.

*(All fitted for Minesweeping)*



ASTORE. 1936.



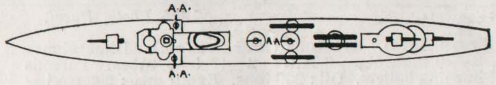
VEGA. 1937, *W. H. Davis, Esq.*

2 *Napoletani* boats: **Spica** (March 11, 1934), **Astore** (April 22, 1934).
4 *Riuniti* (*Ancona*) boats: **Centauro** (Feb. 19, 1936), **Climene** (Jan. 7, 1936), **Castore** (Sept. 27, 1936), **Cigno** (Nov. 24, 1936).
2 *Tirreno* boats: **Canopo** (Oct. 10, 1936), **Cassiopea** (1936).
4 *Quarnaro* boats: **Sirio** (Nov. 14, 1935), **Perseo** (Oct. 9, 1935), **Sagittario** (June 21, 1936), **Vega** (July 12, 1936).
4 *Ansaldo* boats: **Altair** (July, 1936), **Antares** (July, 1936), **Aldebaran,** (July 15, 1936), **Andromeda.**

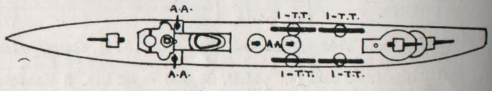
Standard displacement: *Spica* and *Astore*, 638 tons; Riuniti and Tirreno boats, 652 tons; Quarnaro and Ansaldo boats, 642 tons. Respective lengths (*o.a.*), 263½, 267, and 269 feet. Beam, 27 feet. Respective draughts: 7½, 7½ and 7 feet (*mean* in all). Complement, 94. Guns: 3—3·9 inch, 47 cal., 4—37 mm. AA., 4—13 mm. AA. Tubes: 4—18 inch, paired in some, single in others. Machinery: 2 Tosi geared turbines. 2 shafts. S.H.P.: 19,000 = 34 kts. (exceeded on trials). 2 boilers of 3-drum type. Oil fuel.

| *Name* | *Laid down* | *Compl.* |
|---|---|---|
| *Spica* | May 1933 | June 1935 |
| *Astore* | | May 1935 |
| *Centauro* | May 1934 | 1936 |
| *Climene* | | Apr. 1936 |
| *Perseo* | Nov. 1934 | Feb. 1936 |
| *Sirio* | | |
| *Canopo* | Dec. 1935 | |
| *Cassiopea* | | |

| *Name* | *Laid down* | *Compl.* |
|---|---|---|
| *Altair* | Oct. 1935 | |
| *Antares* | | |
| *Aldebaran* | | |
| *Andromeda* | | |
| *Sagittario* | Nov. 1935 | |
| *Vega* | | |
| *Castore* | Mar. 1936 | |
| *Cigno* | | |

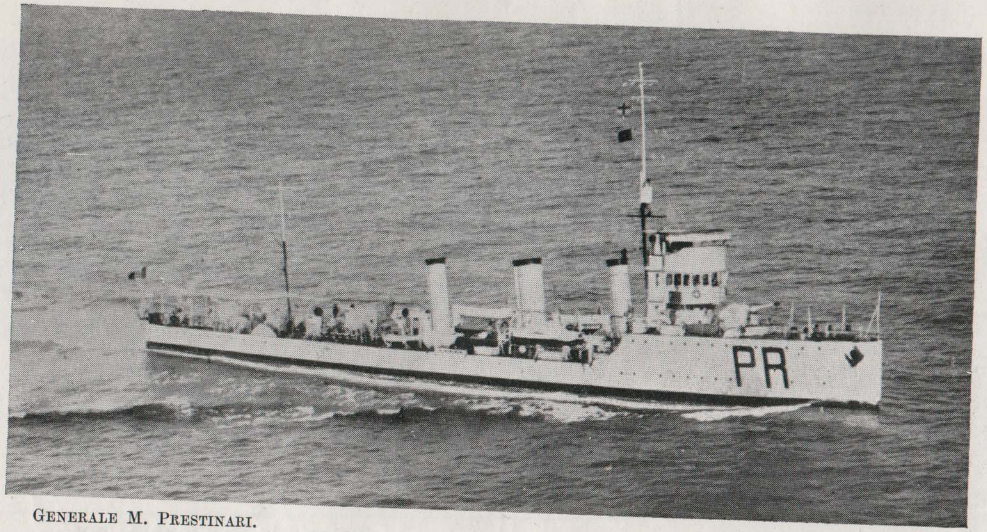


SPICA type.



VEGA type.

## 6 "Generali" class (*Minelayers*).



GENERALE M. PRESTINARI.

1936.

6 *Odero* type: **Generale Achille Papa** (1921), **Generale Antonio Cantore** (April, 1921), **Generale Antonino Cascino** (1922), **Generale Antonio Chinotto** (1921), **Generale Carlo Montanari** (1922), **Generale Marcello Prestinari** (1922). Displacement: 635 tons. Dimensions: 237·9 × 23·9 × 9 feet. Guns: **3**—4 inch, 45 cal., **2**—3 inch AA., **2** M.G. Tubes: **4**—18 inch in two twin deck mountings. Tosi Turbines. S.H.P. 18,000=33 kts. (*about* 30 kts. best speed now). 4 Thornycroft boilers. Oil: 150 tons. Complement, 105. Radius: 2200 miles at 14 kts.; 600 miles at 33 kts.

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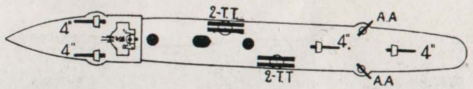
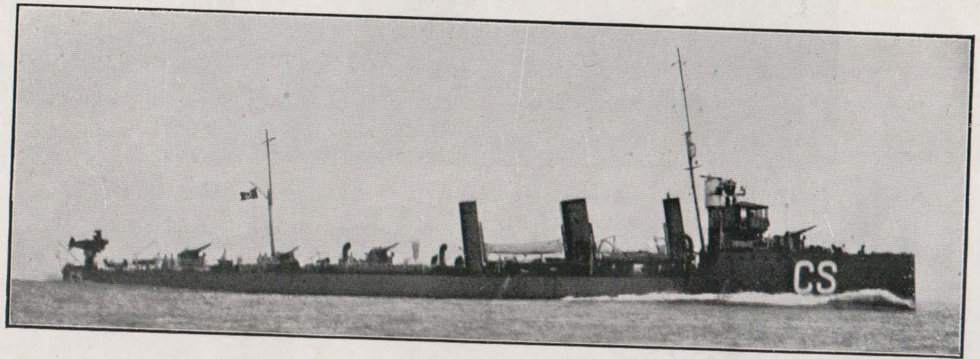
## 7 "Cosenz" class.

Deck Plan of COSENZ class (*Generali* class similar, but only **1**—4 inch on forecastle).



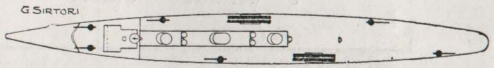


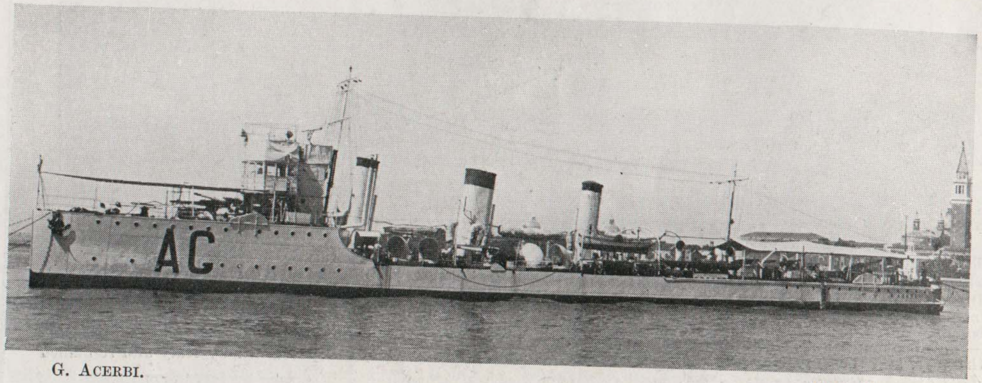
E. COSENZ

1925 *Photo, Pucci.*

7 *Odero* type: **Enrico Cosenz** (ex-*Agostino Bertani*), **Giacomo Medici**, **Giuseppe la Farina**, and **Nicola Fabrizi** (all 1917); **Angelo Bassini**, **Giacinto Carini**, **Giuseppe la Masa**, (all 1916). 635 tons (810 *full load*). Dimensions: 238 (*p.p.*) × 24 × 9·2 feet (*mean*). Guns: **4**—4 inch, **2**—3 inch, AA. 4 M.G. Tubes (in all): **4**—18 inch, in two twin-deck mountings. No mines carried. S.H.P. 15,500=32 kts. (On trials made 34·1 kts. Now good for *about* 30 kts.) Fuel: 150 tons. Complement, 100. 2 Tosi turbines. 4 Thornycroft oil-burning boilers. 2 screws. Endurance: 1700 miles (15 kts.), 470 miles (full speed). *Benedetto Cairoli* of this class, lost during War.

## 4 "Sirtori" class.





G. ACERBI.

1935, *Bassan.*

4 *Odero* type: **Giuseppe Sirtori, Francesco Stocco, Giovanni Acerbi, Vincenzo Orsini** (all 1916). Displacement: 669 tons *Standard*. Dimensions: 238 (*p.p.*) × 24 × 9·2 feet (*mean*). Guns: **6**—4 inch, 35 cal., **2**—40 m/m. AA. **4** M.G. Tubes: **4**—18 inch, in twin mountings. 2 Tosi turbines. S.H.P. 15,500 = 30 kts. 4 Thornycroft oil-burning boilers. 2 screws. Radius: 1700 miles at 15 kts., 470 miles at 33 kts. Fuel: 150 tons. Complement, 100. Carry 10 mines.

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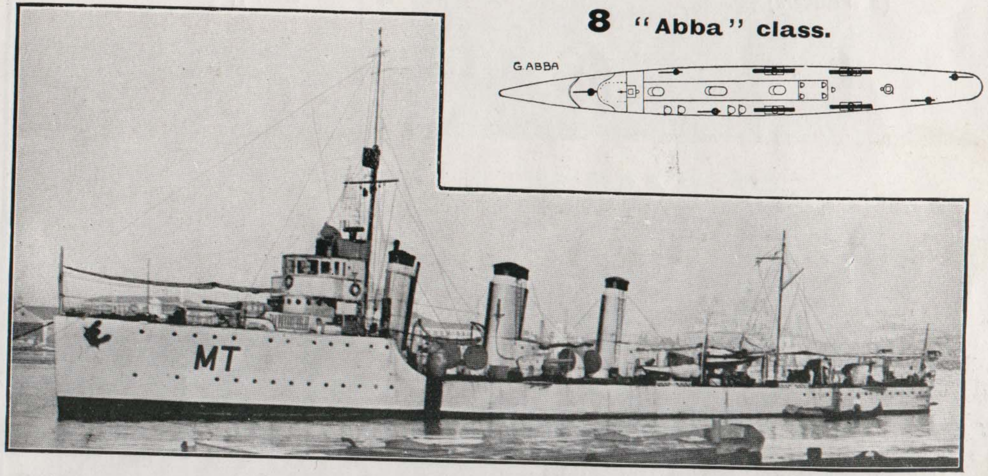
## 8 "Abba" class.

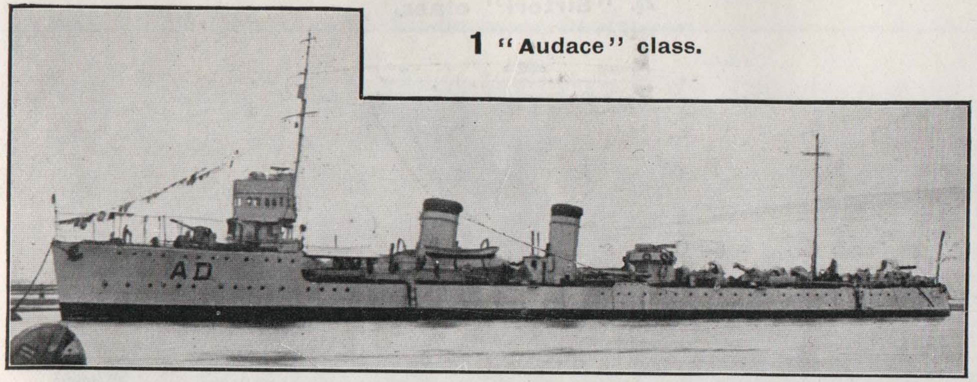


ANTONIO MOSTO.

1925 *Photo, Bassan.*

2 *Pattison* boats: **Fratelli Cairoli**, (*Ex-Francesco Nullo*), **Antonio Mosto** (both 1914).
6 *Odero* boats: **Rosolino Pilo, Giuseppe Abba, Ippolito Nievo, Simone Schiaffino, Giuseppe Dezza** (*Ex-Pilade Bronzetti*), (all 1914), **Giuseppe Missori** (1915). 615 tons. Dimensions: 236·2 (*p.p.*) × 24 × 8·8 feet (*mean*). Guns: **5**—4 inch, **2**—40 m/m. AA. 4 M.G. Tubes: **4** single 18 inch. Made about 31·8 kts. on trials. 2 Tosi turbines and 4 Thornycroft oil-burning boilers. 2 screws. Endurance: 1700 miles 15 (kts.) 440 miles (full speed). S.H.P. 15,500 = 32 to 33·8 kts. except 2 Pattison boats, S.H.P. 14,500=30·8 kts. Fuel: 150 tons. Complement, 94.

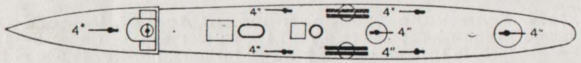
## 1 "Audace" class.



AUDACE. 1925 *Photo, Bassan.*

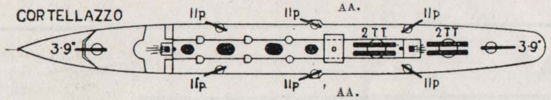
1 *Yarrow* type: **Audace** (ex-Japanese *Kawakaze*, Scotstoun, Glasgow 1915). 629 tons (over 1000 tons *full load*). Dimensions: 275 (*p.p.*), 283 (*o.a.*) × 27½ × 9½ feet (*max.*). Guns: **7**—4 inch, **2**—40 m/m. AA. **4** M.G. Tubes: **4**—18 inch. in two twin mountings. Fuel: 252 tons. 2 sets Brown-Curtis turbines and 3 Yarrow large-tube, oil-burning boilers. Endurance; 2,180 miles (15 kts.), 560 miles (full speed). S.H.P. 22,000 = 31 kts. Complement, 113.

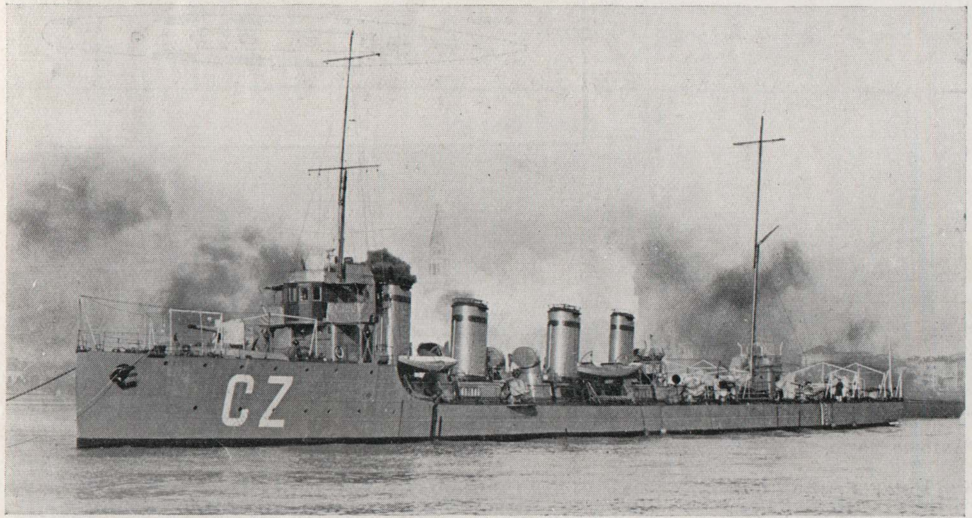
*Note.*—This boat must not be confused with *Audace* built in 1912–13 by Orlando. The Orlando *Audace* was sunk during the War, and the Japanese *Kawakaze* (closely resembling the lost *Audace*) was purchased by Italy and re-named *Audace*.



## 3 "Cortellazzo" class (ex-Austrian).

(*Minelayers*)

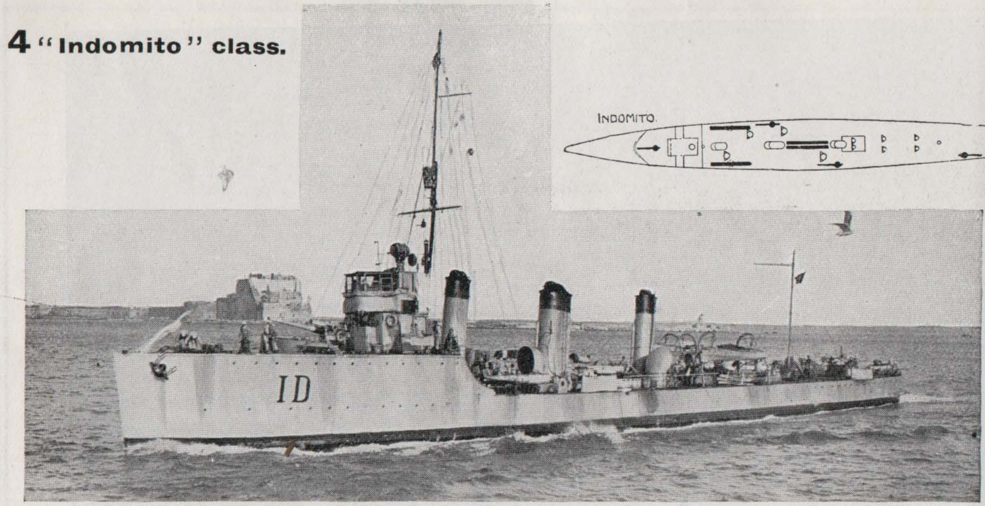




CORTELLAZZO. *Added* 1935, *Bassan.*

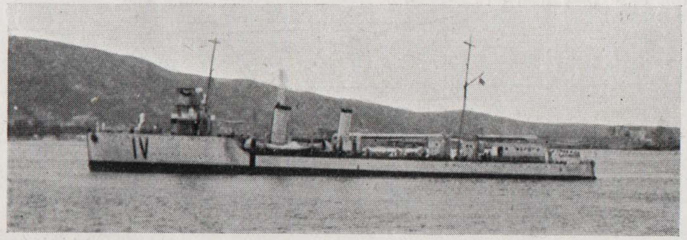
3 *Ganz-Danubius* type: **Cortellazzo** (ex-*Lika*), **Grado** (ex-*Triglav*), **Monfalcone** (ex-*Uszok*), all built 1914–17. 562 tons. Dimensions: 274 × 25¾ × 8¼ feet. Guns (Austrian): **2**—3·9 inch, **4**—66 m/m., **2**—66 m/m. AA., **4** M.G. Tubes: **4**—18 inch, in pairs. A.E.G. turbines and 6 Yarrow boilers. S.H.P.: 22,000 to 23,700 = 32 to 32·5 kts. Fuel: 110 tons coal, 140 tons oil. Complement: 114. Added to Italian Navy, Sept., 1920. Another this type, *Muggia*, was wrecked in Chinese waters, March 15, 1929. *Zenson* scrapped, 1937.

## 4 "Indomito" class.



INDOMITO. 1919 *Photo, Commr. Holberton, R.N.*

4 *Pattison* type (Thornycroft design): **Indomito** (1912), **Impavido, Insidioso, Irrequieto** (1913). 542 tor Dimensions; 238 (*p.p.*) × 24 × 8·4 feet. Guns: **5**—4 inch, **1**—40 mm., **4** M.G. None now fitted for minelayin Tubes: **4**—18 inch. Trials: S.H.P. 17,000 to 18,000 = 33 to 35·7 kts. 2 Tosi turbines and 4 oil-burning Thorn croft boilers. Fuel: 128 tons. Complement, 94. Endurance: 1,520 miles (15 kts.), 360 miles (full speed). *Impetuo* and *Intrepido* of this class lost in the War. *Impavido* at present without armament, as refitted for control of targ ship *S. Marco*, vide photo below.

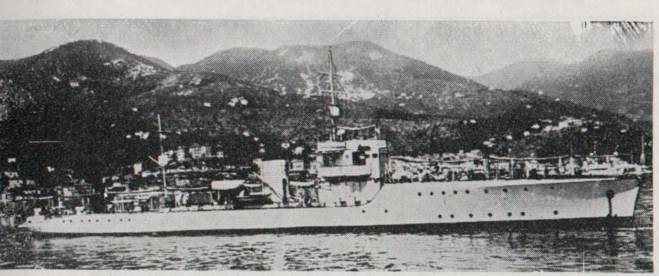


IMPAVIDO. 1937.

## Torpedo Boats (*continued*).

### 1 Special Type.

(Classed as *Cacciasommergibili.*)



1936.

***lbatros*** (Cantieri Riuniti, Palermo, May 27, 1934). isplacement : 340 tons. Dimensions : 231¼ × 22½ × 6 feet. Guns : 2—3·9 inch, 47 cal., 4—37 mm. AA. Tubes : 2—18 inch. Machinery : 2 Belluzzo geared turbines. 2 shafts. S.H.P. 4,000 = 24·5 kts. 2 boilers of 3-drum type.

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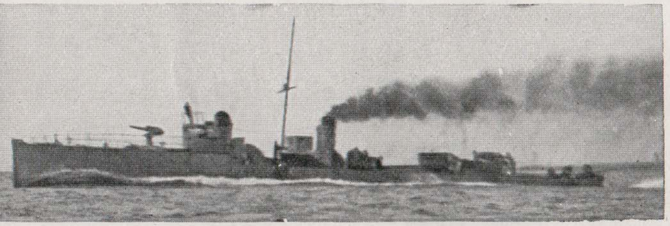
## 2 Coastal Torpedo Boats.

(Classed as *Torpediniera Costiera*).



(2 funnels.) 1919 *Photo, by courtesy of Flli. Orlando.*

*Orlando* boat : ***75 O.L.T.*** Built at Leghorn. Begun 1917. Launched Jan., 1918. Finished Sept., 1918. 172 tons. Guns : 2—3 inch AA., 1 M.G. Torpedo tubes : 2—18 inch. S.H.P. 3,500 = 29 kts. 2 sets turbines and 2 water-tube boilers. Coal : 40 tons.

(Classed as *Mototorpediniera*)

Photo wanted.
*For approximate appearance see silhouette.*

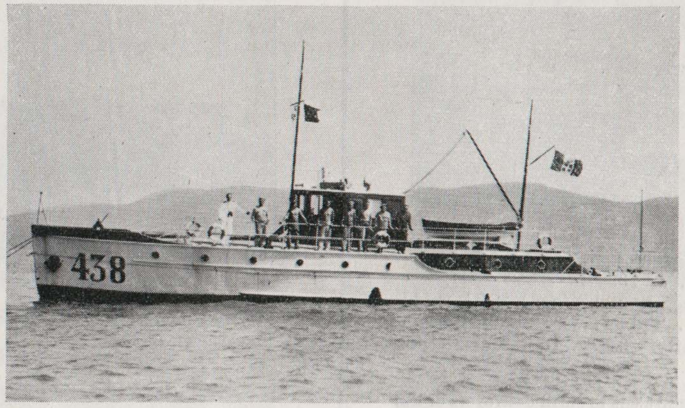
*perimental* type : ***Stefano Turr*** (Cant. Costruz. Mecc. e Aeronautica, Pisa, 1935).
*ndard* displacement: 59 tons. Dimensions : 105 (*o.a.*) × 18 × 2¾ feet. Guns : 3 M.G. AA. Tubes : 4—18 inch. Machinery : Fiat high speed 4-stroke Diesels. 2 shafts. H.P. : 3,000 = 34 kts. (actual speed reported to be under 30 kts.) More of this type are *projected*.

## 100 + *20* Motor Torpedo Boats.

Classed as M.A.S. (*Motoscafi Anti-Sommergibili*)

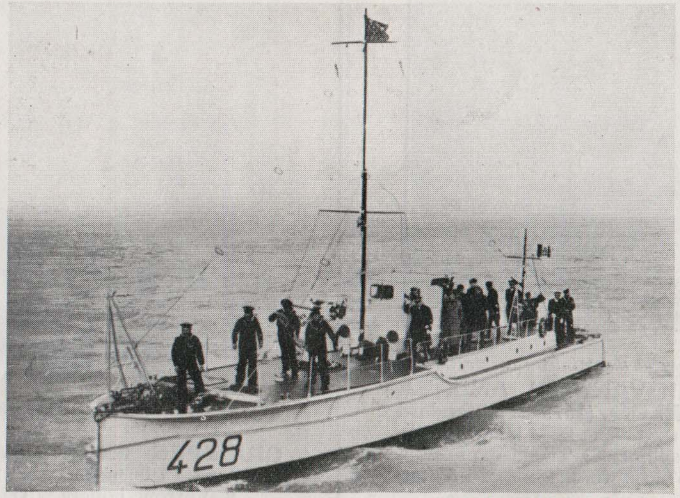
### New Construction :

20 M.A.S. of 18 tons and *ca.* 5 of 25 tons were completed at the end of 1936. About 45 were completed during 1937 ; and at least 20 are believed still to be under construction. Consecutive numbers of these run to about M.A.S. 530.



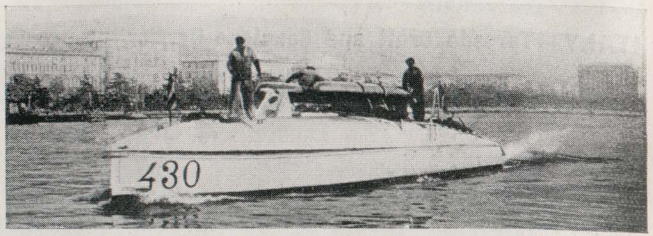
1937

4 S.V.A.N. boats : **M.A.S. 438—441** (1935). 35½ tons.

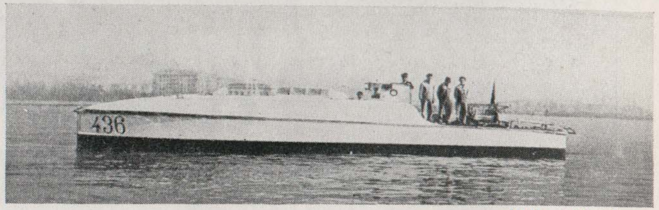


1937, *Wide World Photos.*

2 S.V.A.N. boats : **M.A.S. 428, 429** (1925). 32 and 30 tons, respectively. Length : 72.2 feet. Motors (Isotta Fraschini) : 1200 B.H.P. = 28 kts. Guns : 1—3 inch, 2 M.G. Torpedo tubes : 2—18 inch.

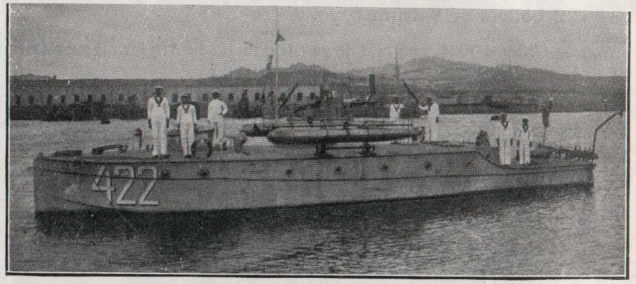


1935, *Official.*



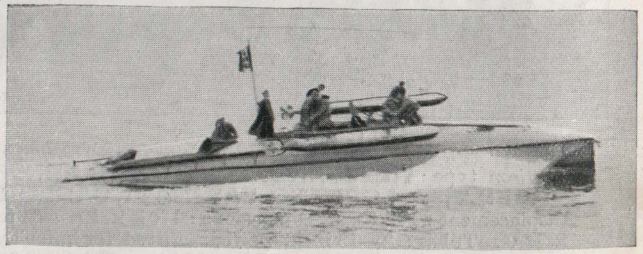
1935, *Official.*

10 S.V.A.N. boats : **M.A.S. 423, 425, 426, 430, 432-437** (1923–30). Displacement : 13½ to 14 tons. 2 M.G. 2 T.T. 5 D.C. Length over 50 feet. H.P. : 1,500 = 40 kts.
1 Baglietto boat : **M.A.S. 431.** 15 tons. Of similar type to above.



1926 *Official Photo.*

2 S.V A.N. boats : **M.A.S. 418, 422** (1922). 21 tons. Length : 59 feet. 1200 B.H.P. = 26 kts. 2 M.G. Torpedo tubes : 2—18 inch. 3 D.C. carried.

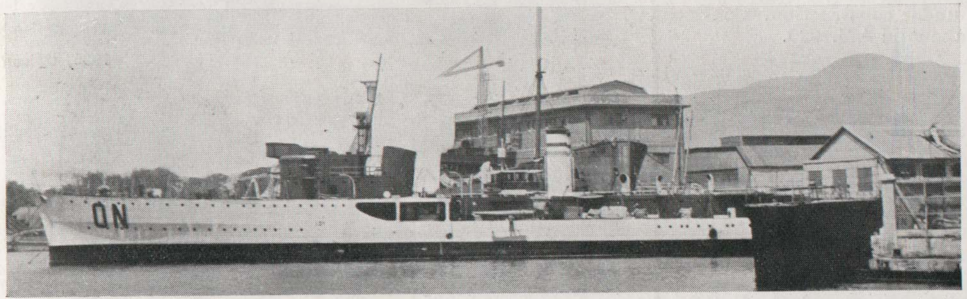


1919 *Photo.*

11 boats "Tipo A" : **M.A.S. 96, 188, 204, 206, 210, 212, 213, 216, 222, 228, 230.** (S.V.A.N., Ansaldo, Orlando, Baglietto, etc., 1916–19.) 12 tons. Length : 52½ feet. Motors (Isotta Fraschini or Sterling, or F.I.A.T.) : 400 to 500 B.H.P. = 22–26·5 kts. Guns : 2 M.G. 2 torpedo tubes or dropping gears. Some carry mines.

## **Escort Torpedo Craft** (rated as *Avvisi Scorta*).

### **4 Orsa class.**

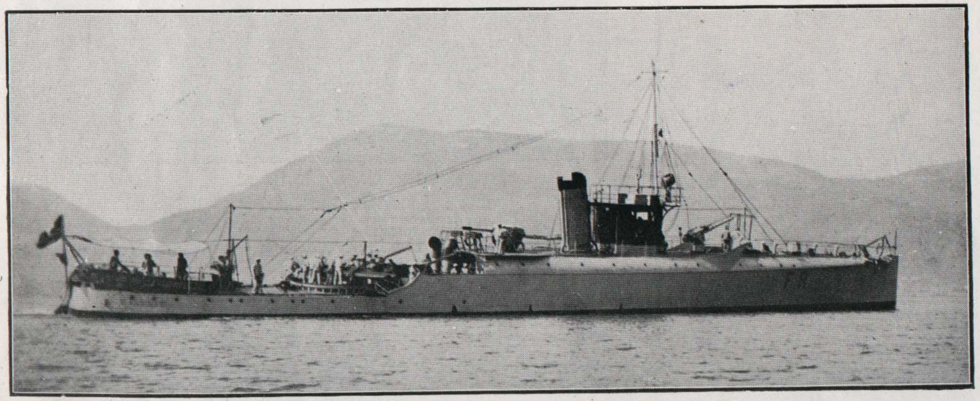


ORIONE completing 1937, *W. H. Davis, Esq.*

2 *Riuniti* (*Palermo*) boats : **ORIONE** (April 22, 1937), **ORSA** (March 21, 1937).
2 *Napoletani* boats : **PEGASO** (Dec. 8, 1936), **PROCIONE** (Jan. 1, 1937).
*Standard* displacement : 855 tons. Dimensions : 274¼ (*p.p.*), 279 (*w.l.*), 292¾ (*o.a.*) × 31 × 11½ (*max.*), 8 feet (*mean* draught). Guns : **2**—3·9 inch, 47 cal., **8** M.G. Tubes : **4**—18 inch, paired. Fitted for mine-laying. Machinery : Tosi geared turbines. 2 shafts. S.H.P. 16,000 = 28 kts. 2 boilers of 3-drum type.

*Notes.*—Ordered 1935, and laid down early in 1936. Are for all practical purposes equivalent to small destroyers of less speed than usual.

### **5 Bafile Class.**

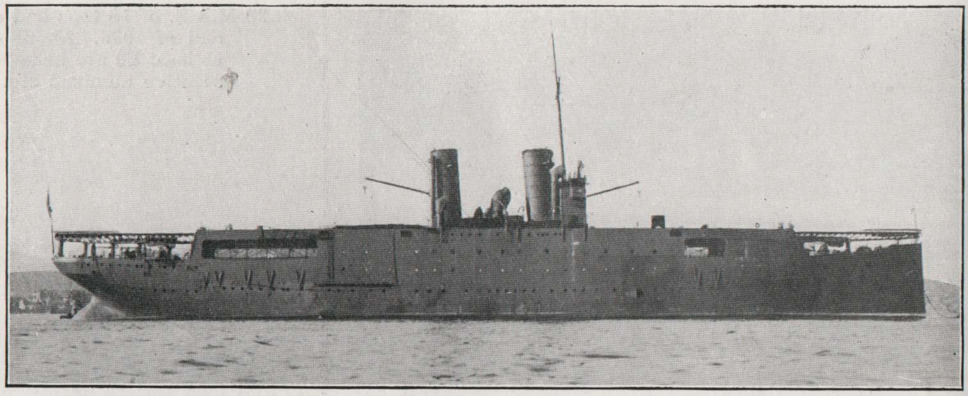


T. FARINATI. 1925 *Photo, by courtesy of the Ministry of Marine.*

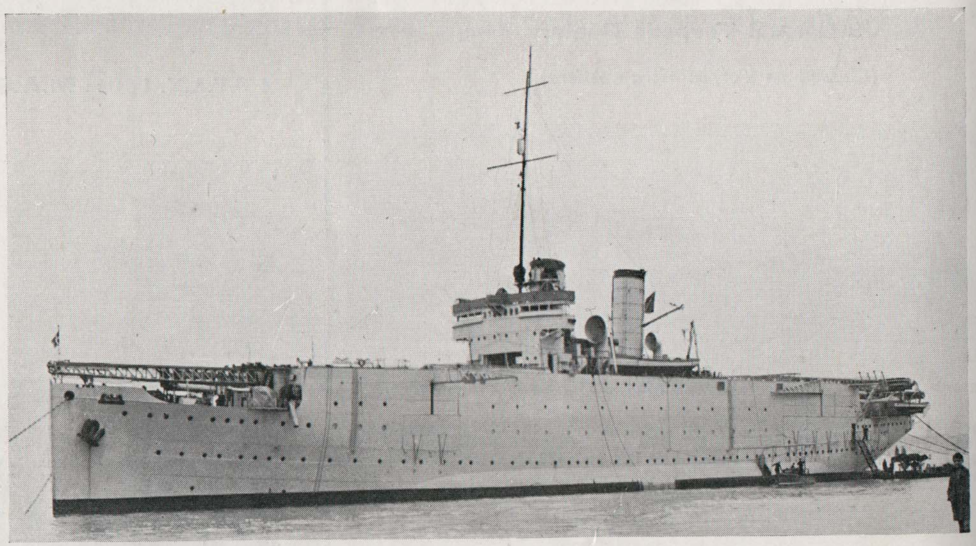
5 *Pattison* type : **ALESSANDRO VITTURI, ERNESTO GIOVANNINI, ANDREA BAFILE, TOLOSETTO FARINATI, CARLO DEL GRECO.** (1919–21). Standard displacement : 182 tons. Dimensions : 170½ × 19 × 5⅔ feet (*mean*). Guns : **2**—4 inch, 35 cal., 2 M.G. Tubes : **2**—18 inch, paired. Fitted for minelaying. Machinery : Triple expansion. 2 shafts. Designed H.P. 2,400 = 23 kts. (Trials, 3,262 = 23·7 kts. to 3,462 = 25·8 kts.) 2 boilers. Oil fuel : 40 tons. Radius : 900 miles at 20 kts.

*Notes.*—These vessels resemble coastal torpedo boats. A sixth ship of this class, *E. Rosso*, was burned on stocks and hull scrapped.

## **Seaplane Carrier.** (*Nave Appoggio Aerei.*)



G. MIRAGLIA. 1927 *Photo, Capitan Mateo Mille.*



G.MIRAGLIA. (Observe bulge.) 1935, *Bassan.*

**GIUSEPPE MIRAGLIA** (ex-*Citta di Messina*, 20th December, 1923). Displacement : 4,880 tons. Dimensions : 377 × 49 × 17 feet. Guns : **4**—4 inch. AA., **4**—M.G. Parsons geared turbines. 8 Yarrow boilers. I.H.P. : 12,000 = 21 kts. Oil Fuel : 440 tons. Complement : 180. Reconstructed at Spezia D.Y., 1924–27. Carries 4 large and 16 smaller planes, with usual facilities for repairs and renewals and 2 catapults (forward and aft) for launching planes.

## 86 + 20 *(building)* Submarines :

### CLASSIFICATION OF TYPES,

Остались
8 б. 816-1461т
10 ср. 599-760т
5 загр. 802-1571т

(1) Sommergibili di grande crociera.
(Ocean-going.) Displacing more than 1,000 tons. **8**

(2) Sommergibili di media crociera.
(Sea-going.) Displacing more than 700 tons. **25 + 12** *building.*

(3) Sommergibili di piccola crociera.
(Coastal.) Displacement 700 tons or less. **46 + 17** ,,

(4) Sommergibili di Posamine.
(Minelayers) **7 + 1** ,,

### SUBMARINE RECOGNITION LETTERS. (Officially revised, 1936.)

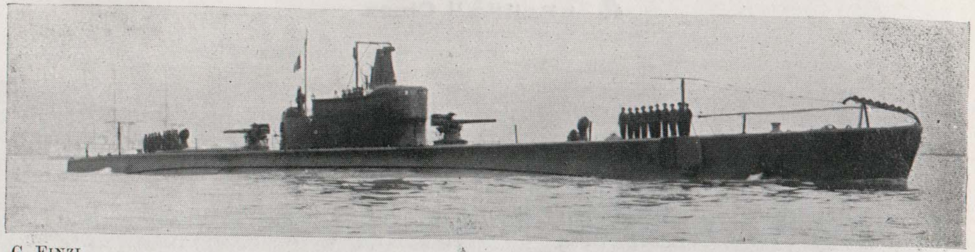
Painted on Conning Tower.

| | |
|---|---|
| **A A** | .. Ametista |
| **A G** | .. Argonauta |
| **A H** | .. Archimede |
| **A N** | .. Anfitrite |
| **B A** | .. Bandiera |
| **B G** | .. Bragadino |
| **B L** | .. Balilla |
| **B N** | .. Bausan |
| **C N** | .. Colonna |
| **C R** | .. Corridoni |
| **C V** | .. Calvi |
| **D L** | .. Delfino |
| **D M** | .. Diamante |
| **D N** | .. Des Geneys |
| **F A** | .. Ferraris |
| **F R** | .. Fieramosca |
| **F S** | .. Fisalia |
| **F Z** | .. Finzi |
| **G A** | .. Galvani |
| **G L** | .. Galilei |
| **G M** | .. G. Mameli |
| **G P** | .. G. da Procida |
| **G T** | .. Galatea |
| **G U** | .. Glauco |
| **J A** | .. Jalea |
| **J N** | .. Jantina |
| **M C** | .. Micca |
| **M E** | .. Menotti |
| **M L** | .. Millelire |
| **M O** | .. Mocenigo |
| **M R** | .. Manara |
| **M U** | .. Medusa |
| **N A** | .. Naiade |
| **N E** | .. Nereide |
| **N R** | .. Narvalo |
| **O A** | .. Otaria |
| **O N** | .. Ondina |
| **P C** | .. P. Capponi |
| **P N** | .. Pisani |
| **R S** | .. R. Settimo |
| **R U** | .. Rubino |
| **S B** | .. Settembrini |
| **S C** | .. Sciesa |
| **S D** | .. Smeraldo |
| **S E** | .. Serpente |
| **S I** | .. Sirena |
| **S N** | .. Santarosa |
| **S P** | .. Salpa |
| **S Q** | .. Squalo |
| **T L** | .. Torricelli |
| **T O** | .. Toti |
| **T P** | .. Topazio |
| **T R** | .. Tricheco |
| **T S** | .. T. Speri |
| **T Z** | .. Tazzoli |
| **Z A** | .. Zaffiro |

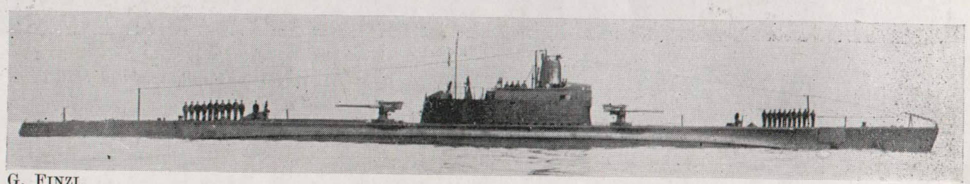
## Ocean-going *(Grande Crociera)*.

## 3 "Calvi" Class.

(Improved "Balilla" design.)



G. Finzi. 1937.

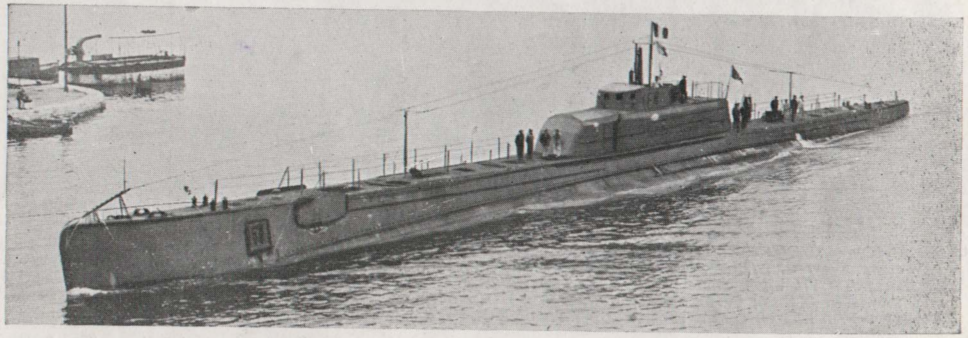


G. Finzi. 1937.

3 *Odero-Terni-Orlando* type : **Pietro Calvi** (March 31, 1935). **Enrico Tazzoli** (Oct. 14, 1935). **Giuseppe Finzi** (June 29, 1935).

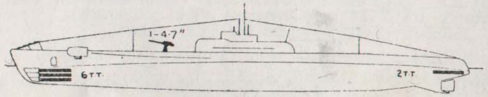
Standard displacement : 1,332/1,965 tons. Complement, 66
Dimensions : 272 (*w.l.*), 276½ (*o.a.*) × 25⅓ × 13 feet (*mean*).
Guns : **2**—4·7 inch, 45 cal., **4**—13 mm. AA. Tubes : **8**—21 inch (6 bow, 2 stern).
2 Fiat Diesels. H.P. : 4,400/1,800 = 17/8¾ kts.
Radius : *Surface* : 13,500 miles at 9 kts ; *submerged* : 80 miles at 4 kts.

*Notes.*—Laid down 1932, under 1930 Programme. Normal diving limit, 55 fathoms (reached on trials at Spezia).

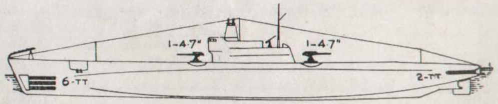


E. Fieramosca. 1932 *Photo, Official.*

1 *Bernardis* type : **Ettore Fieramosca** (April 15th, 1929). Laid down August, 1926, by Cantiere Navale Franco Tosi, Taranto. 1,340 tons *surface* displacement, 1,788 tons *submerged*. Complement, 64. Dimensions ; 270¼ (*o.a.*) × 27½ × 14¾ feet (*mean*). Guns : **1**—4·7 inch, 45 cal., **4**—13 mm. AA. **8**—21 inch tubes. Can carry a small seaplane. Machinery : 2 sets Tosi Diesels. B.H.P. 5,500 = 19 kts. *surface*. Electric motors, H.P. 2,000 = 10 kts. *submerged*. Fuel : 150 tons.



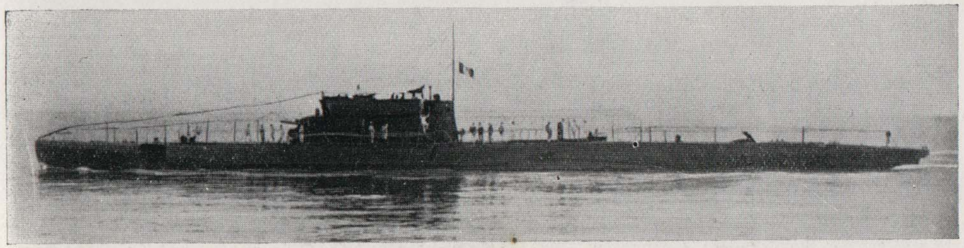
E. Fieramosca.



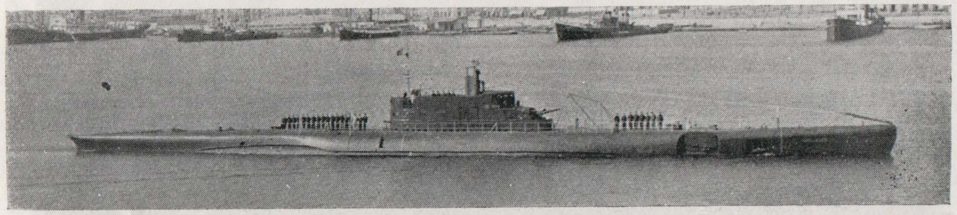
Calvi class.

## Ocean-going—*continued.*

### 4 "Balilla" Class.



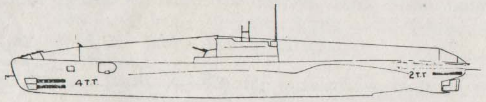
E. TOTI. 1931 *Photo, Capitan Mateo Mille.*



D. MILLELIRE. 1935, *Sig. F. Cianciafara*

4 *Odero* type: **Balilla** (20th Feb., 1927), **Antonio Sciesa,** (Aug 12th, 1928), **Enrico Toti,** (14th April, 1928), **Domenico Millelire** (Sept. 19th. 1927). Built at Spezia by Odero-Terni Co. *Surface* displacement, 1368 tons; *submerged*, 1,874 tons. Dimensions: 282 (*o.a.*) × 24½ × 14 feet *mean* draught. Guns: **1**—4·7 inch, 45 cal., **4**—13 mm. AA. Tubes: **6**—21 inch (4 bow, 2 stern). Complement: 64. Machinery: 2 sets Fiat Diesels, of H.P.: 4,400 = 17·5 kts. *on surface*; electric motors of H.P.: 2,200 = 9·5 kts. *submerged.* Fuel: 140 tons.

*Note.*—Above submarines are designed for deep diving, and are of exceptionally strong construction. The design of these boats embodies a number of innovations, such as the placing of the Diesel engines and electric motors much further forward than usual; the elimination of bow hydroplanes; novel distribution of ballast tanks; and an improved form of hull. In consequence, an unprecedented degree of safety, both in diving and manœuvring is claimed for this type. They were laid down early in 1925. *Millelire* reached a depth of 66 fathoms in diving trials, May 1928. In 1934 *Toti* and *Sciesa* cruised right round Africa (15,000 miles) in 5½ months.



BALILLA Class.

## Sea-going (*Media Crociera*).

### 9 "Marcello" Class.

*Building or completing.*

9 *Adriatico* boats: **Dandolo, Marcello, Mocenigo** (all Nov. 20th, 1937), **Barbarigo, Emo, Morosini, Nani, Provana, Veniero.**

Displacement: 941/—— tons. Dimensions: 235 (*w.l.*), 239½ (*o.a.*) × 23⅔ × 15½ feet (mean). Guns: **2**—3·9 inch, **2**—M.G. AA. Tubes: **8**—21 inch. 2 Sulzer Diesels by builders and 2 electric motors. H.P. 3,000/———. 17/9 kts.

Bronzo - gy Narval 42, $\frac{714}{864}$ T, $\frac{14}{7}$ kn 1-76 2-20 6-533

### Sea-Going—*continued.*

## 3 "Galvani" Class.

*Building.*

3 *Tosi* boats: **Brin, Galvani, Guglielmotti.**
Displacement: 896/—— tons. Dimensions: $228\frac{3}{4}$ (*w.l.*), $231\frac{1}{3}$ (*o.a.*) × $22\frac{1}{2}$ × $13\frac{1}{2}$ feet (*mean*). Guns: **1**—4·7 inch, 4 M.G. AA. Tubes: **8**—21 inch. 2 Tosi Diesels and 2 electric motors. H.P.: 3,000/——— = 17/9 kts.

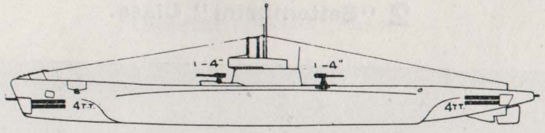
## 2 "Glauco" class.

*For appearance, see Silhouette.*

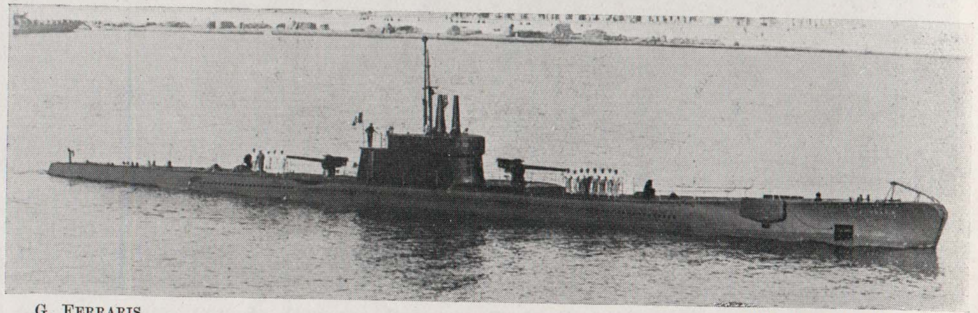
2 *Bernardis* type: **Glauco** (Jan 5, 1935), **Otaria** (March 20, 1935), (Cant. Riuniti dell' Adriatico, Trieste).
Displacement: 863/1,167 tons Complement, 48. Dimensions: $239\frac{1}{2}$ × $23\frac{1}{2}$ × $14\frac{1}{2}$ feet. Machinery: 2 sets Fiat Diesels. H.P. 3,000 = 17 kts. 2 motors H.P. 1,040 = 8·5 kts. *submerged.* Guns: **2**—3·9 inch, 47 cal., **2**—13 mm. AA. Tubes: **8**—21 inch.

### Sea-going—*continued.*

## 4 "Archimede" class.



ARCHIMEDE type.

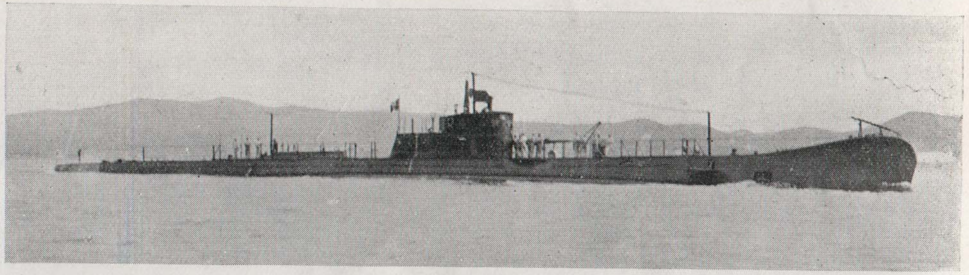


G. FERRARIS.

1935, *Sig. F. Cianciafara.*

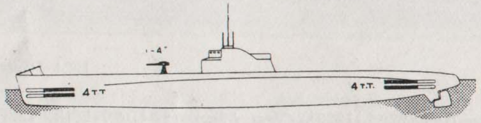
4 *Cavallini* type: **Archimede** (Dec. 10th, 1933), **Galileo Galilei** (March 19th, 1934), **Evangelista Torricelli** (May 27th, 1934), **Galileo Ferraris** (April 11th, 1934). Built by Cant. Nav. F. Tosi, Taranto.
Displacement: 880/1,231 tons. Dimensions: $231\frac{1}{3}$ × $22\frac{1}{2}$ × 13 feet. Complement, 50. Guns: **2**—3·9 inch, 47 cal., **2**—13 mm. AA.
Tubes: **8**—21 inch.
Machinery: 2 Tosi Diesels. H.P. 3,000 = 17 kts. 2 Ansaldo Motors H.P. 1,300 = 8·5 kts. *submerged.*

## 4 "Squalo" Class.



TRICHECO.

1934 *Photo, Pucci.*

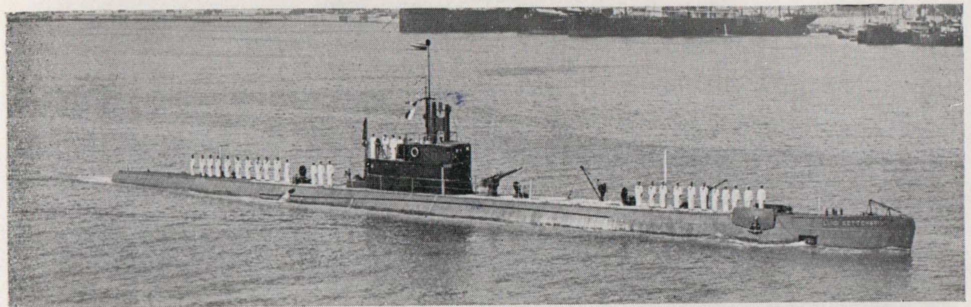


4 *Bernardis* type: ordered 1928 from Cant. Nav. Triestino, Monfalcone: **Delfino** (April 27, 1930), **Narvalo** (March 15, 1930), **Squalo** (Jan. 15, 1930), **Tricheco** (Sept. 11, 1930).
Names translated are respectively *Dolphin, Swordfish, Shark, Walrus.*

Displacement: 810/1,077 tons. Complement, 48. Dimensions: 229 × $18\frac{3}{4}$ × $16\frac{1}{4}$ feet. Machinery: 2 sets Fiat Diesels, H.P. 3,000 = 16·5 kts. 2 electric motors. H.P. 1,400 = 9 kts. Guns: **1**—4 inch, **2**—13 mm. AA. Tubes: **8**—21 inch. *Delfino* has dived to 58 fathoms.

## Sea-going—*continued.*

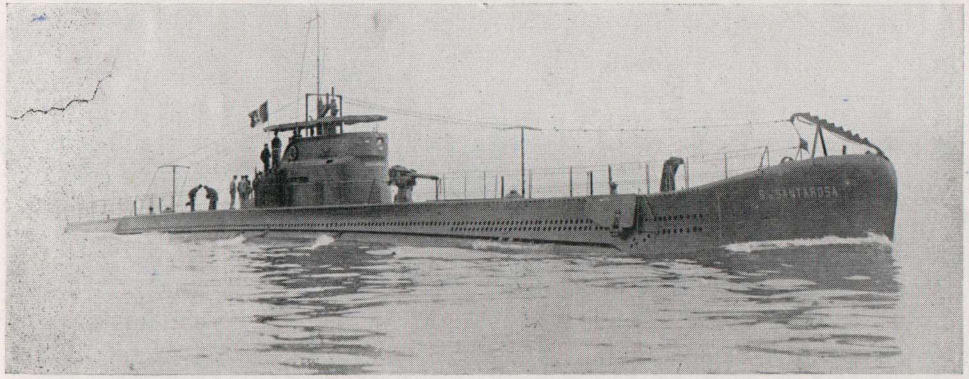
## 2 "Settembrini" Class.



Luigi Settembrini. 1935, *Sig. F. Cianciafara.*

2 *Cavallini* type : **Luigi Settembrini,** (Sept. 28, 1930), **Ruggiero Settimo** (March 29, 1931), (Cant. Nav. F. Tosi, Taranto). 798 tons *surface* and 1,134 tons *submerged.* Complement, 48. Dimensions : 225¼ (*w.l.*), 226¾ (*o.a.*) × 25⅓ × 11½ feet (*mean*). 2 Tosi Diesels. H.P. 3,000 = 17·5 kts. Electric motors, H.P. 1,400 = 9 kts. *submerged.* Guns : **1**—4 inch, **2**—13 mm. AA. Tubes : **8**—21 inch. Radius : 9,000 miles at 8 kts. *surface,* 80 miles *submerged.*

## 4 "Santarosa" Class.



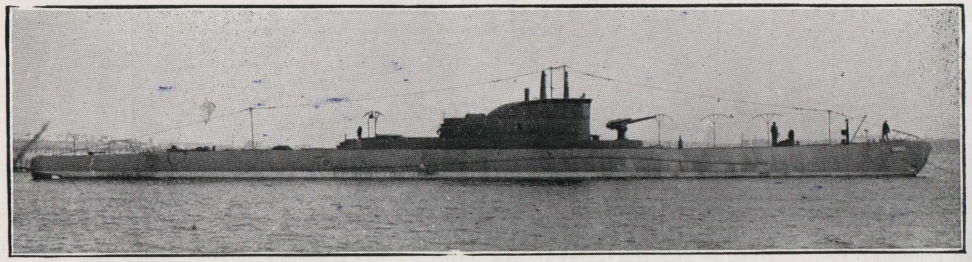
Santarosa. 1934 *Photo, Pucci.*

4 *Bernardis* type : **Santorre Santarosa** (Oct. 22nd, 1929), **Ciro Menotti** (Dec. 29th, 1929), (both Odero-Terni Co., Spezia) ; **Fratelli Bandiera** (Aug. 7th, 1929), **Luciano Manara** (Oct. 5th, 1929), (both Cant. Nav. Triestino, Monfalcone).

Displacement : 815 tons on *surface,* 1,078 tons *submerged.* Complement, 48. Dimensions : 227½ (*w.l.*), 229 (*o.a.*) × 23⅔ × 13⅓ feet (*mean*). 2 Fiat Diesels. H.P. 3,000 = 17·5 kts. *surface ;* electric motors, B.H.P. 1,300 = 9 kts. *submerged.* Guns : **1**—4 inch, 3—13 mm. AA. Tubes : **8**—21 inch. Are an improvement of *Pisani* design. Ordered 1928, and completed 1930.

## Sea-going—*continued*

## 4 "Mameli' class.

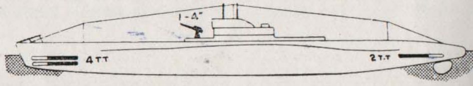


G. Mameli. 1928 *Official Photo.*

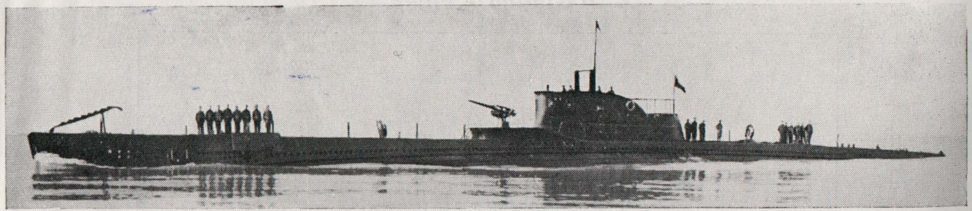
4 *Cavallini* type : **Goffredo Mameli** (ex-*Masaniello,* 9th Dec., 1926), **Pier Capponi** (19th June, 1927), **Tito Speri** (May 25, 1928), **Giovanni da Procida** (April 1, 1928). Ordered from Cantiere Navale F. Tosi, Taranto, 1924–25. Displacement : 770 tons *on surface.* 994 tons *submerged.* Dimensions : 213¼ × 21¼ × 13 feet. 2 Tosi Diesel 8-cyl 4-cycle engines. H.P. : 3,000 = 17 kts. *on surface.* Electric motors of 1,100 H.P. = 9 kts. *submerged.* Guns : **1**—4 inch, **2**—13 mm. AA. Torpedo tubes : **6**—21 inch. Complement, 46.

*Note.*—In March, 1929, *G. Mameli* dived to a depth of 64 fathoms during trials, remaining submerged for 20 minutes, and in March, 1930, to 58 fathoms for 1 hour.

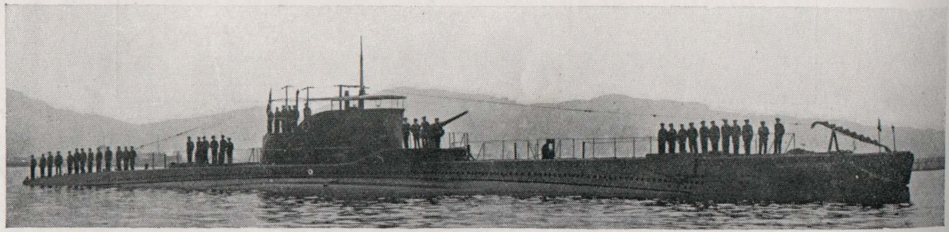
Pisani and Mameli classes.



## 4 "Pisani class.



Vittor Pisani. 1930 *Official Photo.*

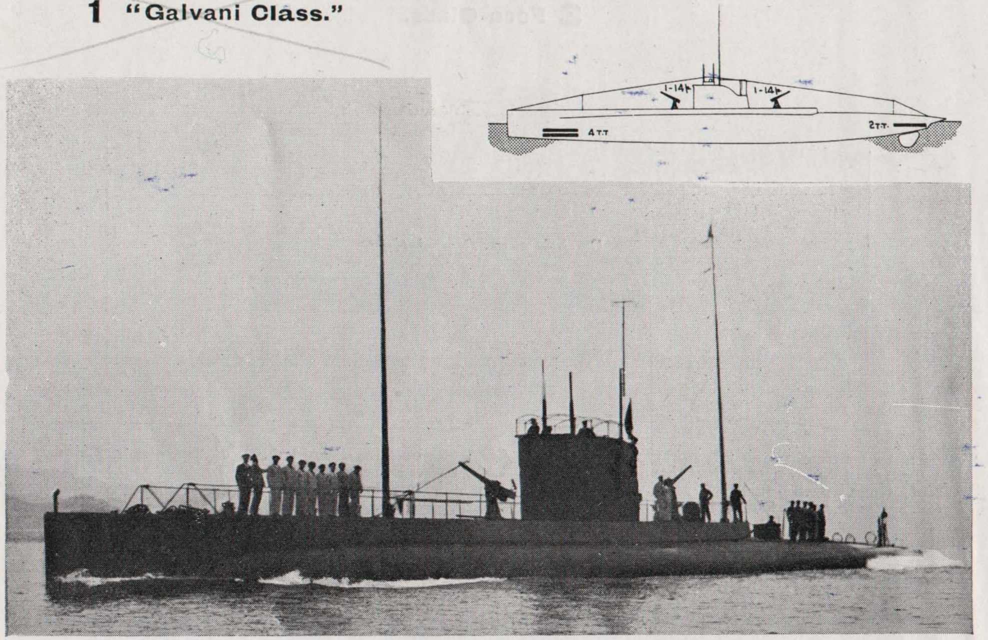


M. Colonna. 1930 *Official Photo.*

4 *Bernardis* type : **Vittor Pisani** (Nov. 24, 1927), **Giovanni Bausan** (March 24, 1928), **Marcantonio Colonna** (Dec. 26, 1927), **Ammiraglio des Geneys** (Nov. 14, 1928). Ordered from Cantiere Navale Triestino, Monfalcone, 1924–25. Displacement : 791 tons *on surface,* 1,040 tons *submerged.* Dimensions : 223 × 19 × 14 feet. Machinery : 2 Tosi Diesels, H.P. : 2,700 = 17·5 kts. *on surface.* Electric motors of 1,200 H.P. = 9 kts. *submerged.* Guns : **1**—4 inch, **2**—13 mm. AA. Tubes : **6**—21 inch. Complement, 46.

## Sea-going—*continued.*

### ~~1 "Galvani Class."~~



1930 *Photo, Capitan Mateo Mille.*

1 *Cavallini* type: ***Luigi Galvani*** (Spezia Navy Yard). Displacement: 779 tons *on surface*, 900 tons *submerged*. Dimensions: 206¾ × 19¾ × 14 feet. Guns: **2**—3 inch, 40 cal. AA., **1** M.G., **6**—17·7 inch torpedo tubes. 2 Fiat Diesels. H.P.: 2,600 = 13·7 kts. *on surface*. Electric motors, H.P.: 1,300 = 10·9 kts. *submerged*. Fuel: 35 tons. Radius: 1,900 miles at 10 kts. *on surface*, 250 miles at 3·4 kts. *when submerged*. Complement: 37.
*Notes.*—Begun at Venice D.Y., Aug., 1914. Will soon be scrapped.

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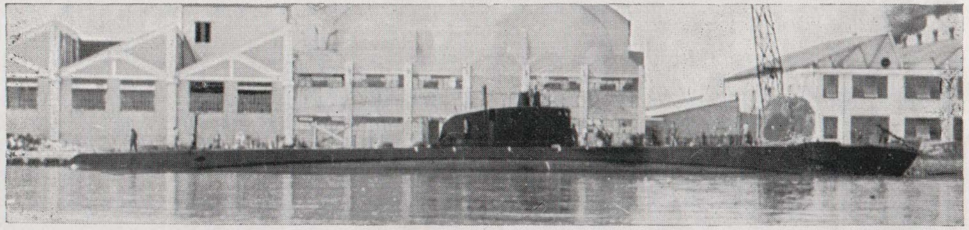
## Coastal (*Piccola Crociera*)

4+

### 2 "Argo" Class.



VELELLA completing. 1937, *W. H. Davis, Esq.*

2 *Adriatico* boats: ***Argo,*** (Nov. 24, 1936), ***Velella*** (Dec. 18, 1936). Laid down at Monfalcone, Sept., 1935. Displacement: 676/857 tons. Dimensions: 195¾ (*w.l.*), 206¾ (*o.a.*) × 22½ × 10½ feet (*mean*). Guns: **1**—3·9 inch, 47 cal., **2** M.G. AA. Tubes: **6**—21 inch (bow). Fiat Diesels and 2 electric motors. H.P.: 1,350/800 = 14/8 kts.

## Coastal (*Piccola Crociera*)

### 27 "Perla" Class.

(Appearance similar to *Sirena* type, below).

1937 Programme:
5 *Odero-Terni-Orlando:* ***Beilul, Durbo, Lafole, Uarsheich,*** (Sept. 19, 1937), ***Uebi Scebeli*** (Oct. 3, 1937)
2 *Tosi:* ***Scire, Tembien.***

1936 Programme:
4 *Odero-Terni-Orlando:* ***Ascianghi*** (Feb. 14, 1937), ***Gondar*** (Oct. 3, 1937), ***Macalle*** (1936), ***Neghelli*** (Nov. 7, 1937).

4 *Adriatico:* ***Adua*** (Nov. 1936), ***Alagi*** (Nov. 11, 1936), ***Aradam*** (Nov. 1936), ***Axum*** (Nov. 1936).
2 *Tosi:* ***Dagabur, Dessie*** (both Nov. 22, 1936.)

1935 Programme:
6 *Adriatico:* ***Berillo, Corallo, Diaspro, Gemma, Perla,*** (May 1, 1936), ***Turchese.***
4 *Odero-Terni-Orlando:* ***Ambra, Iride, Malachite, Onice.***

Displacement: 620/853 tons. Dimensions: 195 (*w.l.*), 197½ (*o.a.*) × 21 × 13 feet (*mean*). *Corallo, Turchese,* and 4 of *Adua* group, Adriatico Diesels; *Ambra, Malachite,* and Tosi boats, Tosi Diesels; all the remainder have Fiat type. Armament, horsepower, and speed same as *Sirena* class below. Diving limit: 50 fathoms.

*Note.*—Brazilian submarines *Tamoyo, Timbyra* and *Tupy* were originally units of this class, and first bore the names *Gondar, Macalle* and *Neghelli.*

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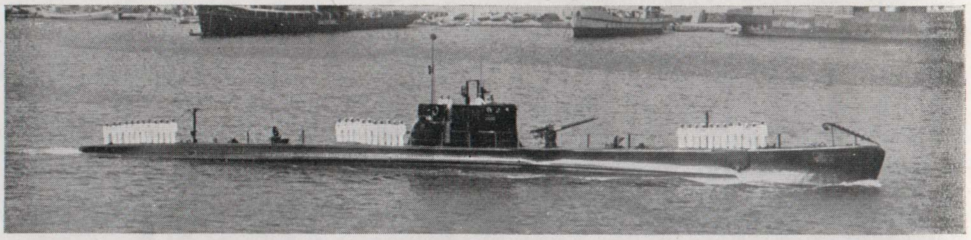
### 12 "Sirena" Class.



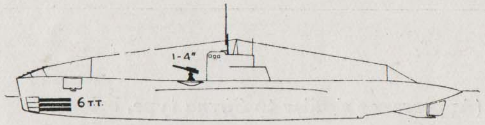
DIAMANTE 1935, *Sig. F. Cianciafara.*

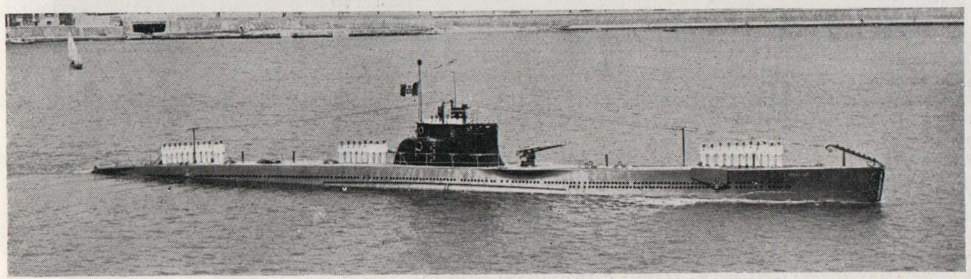
6 *Adriatico:* ***Sirena*** (Jan. 26, 1933), ***Naiade*** (March 27, 1933), ***Nereide*** (May 25, 1933) ***Anfitrite*** (Aug. 5, 1933), ***Galatea*** (Oct. 5, 1933), ***Ondina*** (Dec. 2, 1933).
2 *Tosi:* ***Diamante*** (May 21, 1933), ***Smeraldo*** (July 23, 1933).
2 *Odero-Terni-Orlando:* ***Ametista*** (April 26, 1933), ***Zaffiro*** (July 28, 1933).
2 *Quarnaro:* ***Rubino*** (March 29, 1933), ***Topazio*** (May 15, 1933).

Displacement: 590/787 tons. Dimensions: 194¼ (*w.l.*), 197½ (*o.a.*) × 21 × 12 (*mean*). 13¾ feet (*max.*). Guns: **1**—3·9 inch 47 cal., **2**—13 mm. AA. Tubes: **6**—21 inch. Machinery: 2 sets Fiat Diesels in all except Tosi and Quarnaro vessels, which have 2 sets Tosi Diesels. H.P. 1,350/800 = 14/8·5 kts. Complement, 41.

## **Coastal**—*continued.*

## **7 Argonauta Class.** (*Bernardis type*).

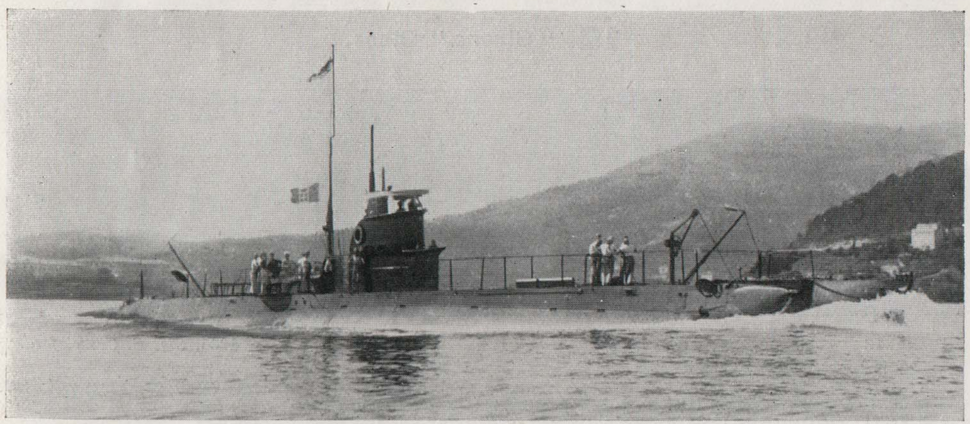



ARGONAUTA. 1935, *Sig. F. Cianciafara.*

3 *Adriatico :* **Argonauta** (Jan 19, 1931), **Fisalia** (May 2, 1931), **Medusa** (Dec. 12, 1931).
2 *Tosi :* **Serpente** (Feb. 28, 1932), **Salpa** (May 8, 1932).
2 *Odero-Terni-Orlando :* **Jalea** (June 15, 1932), **Jantina** (May 16, 1932).

Displacement : 599/778 tons. Dimensions : 200½ (*w.l.*), 201¾ (*o.a.*) (except Tosi boats 218 *o.a.*) × 18½ × 14½ feet. Guns : **1**—4 inch, 35 cal., **2**—13 mm. AA Tubes : **6**—21 inch. Machinery : 2 sets. Fiat Diesels in *Argonauta, Fisalia, Jalea, Jantina* 2 sets Tosi Diesels in *Serpente, Salpa;* 2 sets Adriatico type in *Medusa*. H.P. 1,200/800 = 14/8·5 kts. Complement, 41.

## **5 "H" Class**


H. 2. 1931 *Photo.*

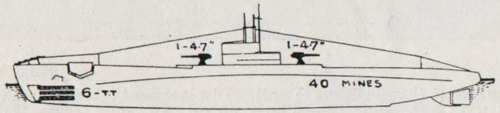
*Electric Boat Co.* design: **H1, H2** (1916), **H4, H6, H8** (1917, by Canadian Vickers Co., Montreal. Displacement: 336 tons *on surface* 434 tons *when submerged.* Dimensions : 150¼ × 15¾ × 12⅓ feet. 4—18 inch bow tubes. Machinery : 2 Nelseco Diesel engines *on surface ;* 2 Electric Dynamic Co. motors *when submerged.* H.P. 480 = 13 kts. *on surface,* H.P. 620 = 11 kts. *when submerged.* Radius : 3,000 miles at 9 kts *on surface.* 130 miles at 2 kts. *when submerged.* Complement, 22. Oil : 18 tons. *H*5 War loss. *H*3, *H*7 scrapped.

## **Minelaying** (*Posamine*).

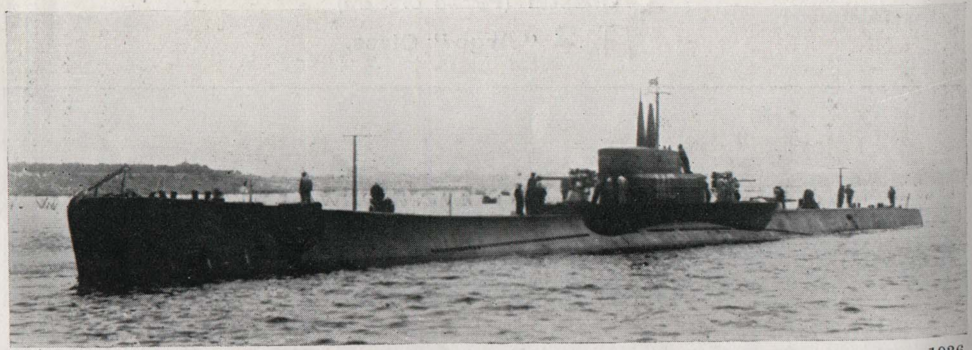
## **3 Foca Class.**

*Building or Completing.*

3 *Tosi* boats : **Foca** (June 26, 1937), **Zoea** (1937), **Atropo** (building). Laid down at Taranto in January and February, 1936, respectively. Displacement : 1,109/1,530 tons. Dimensions : 253½ (*w.l.*), 266¾ (*o.a.*) × 23½ × 12⅓ feet. Guns : **1**—3·9 inch, 47 cal., **2** M.G. AA. Tubes : **6**—21 inch (bow). 2 mine-discharging chutes. Tosi Diesels (except *Zoea*, which has Fiat) and 2 electric motors. H.P .2,880/1,250 = 16/8 kts.



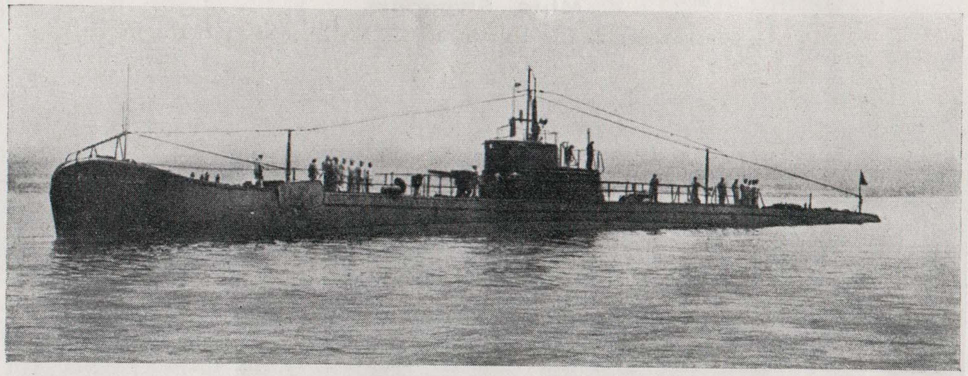
P. MICCA


1936.

1 *Cavallini* type : **Pietro Micca** (Cant. Nav. Franco Tosi, Taranto, March 31, 1935). Displacement : 1,371/1,883 tons. Complement, 66. Dimensions : 296¼ (*o.a.*) × 25¼ × 17½ feet. H.P. 3,000/1,600 = 15·5 kts. *surface*, 8·5 kts. *submerged.* Guns : **2**—4·7 inch, 45 cal., **4**—13 mm. AA. Mines : 40. Tubes : **6**—21 inch. (in bow.)

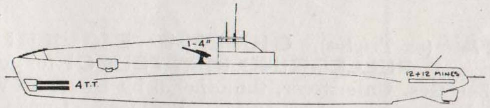
## Minelaying types—*continued.*

## 2 "Corridoni" Class.

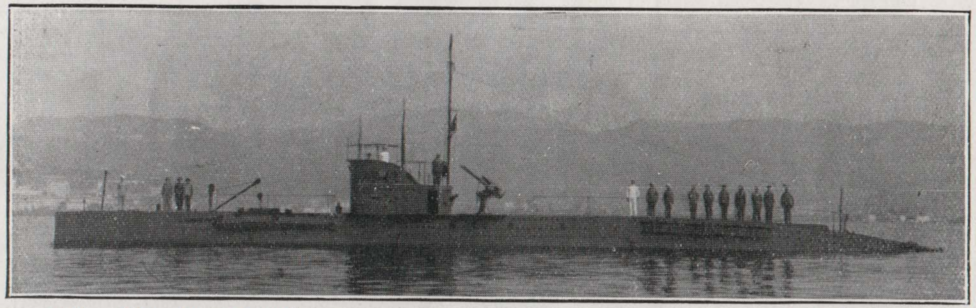


F. Corridoni. *Added* 1935, *Official.*

2 *Bernardis* type: ***Marcantonio Bragadino*** (July 3rd, 1929), ***Filippo Corridoni.*** (March 30th, 1930). Both by Cant. Nav. F. Tosi, Taranto. Displacement: 803 tons *surface*, 1,085 tons *submerged*. Complement, 47. Dimensions: 232½ (*w.l.*), 234½ (*o.a.*) × 20 × 13½ feet (*mean*). 2 Tosi Diesels of H.P. 1,500 = 14 kts. *surface* speed. Electric motors of 1,000 H.P. = 8 kts. *submerged.* Guns: **1**—4 inch, **2** M.G. Tubes: **4**—21 inch. 2 mine-launching chutes. 24 mines.

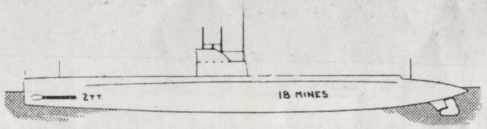


Corridoni type.



X 3. (Gun since removed). 1928 *Photo, Pucci.*

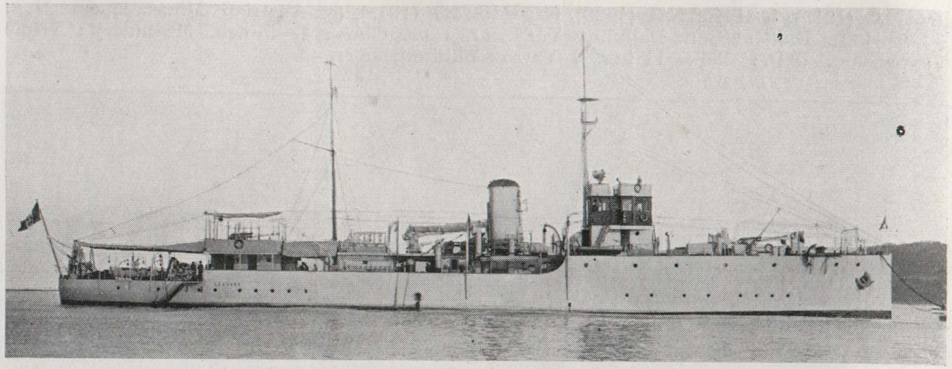
2 *Bernardis* type: ***X2, X3*** (Ansaldo, Sestri Ponente, 1916). Displacement: 389 tons *on surface;* 453 tons *submerged.* Dimensions: 140 × 18 × 13 feet. **1** M.G. Torpedo tubes: **2**—18 inch. Carry 18 mines in 9 discharge chutes. Machinery: 2 Sulzer Diesels *on surface;* 2 Ansaldo electric *submerged.* 660 H.P. = 10 kts. *on surface;* 320 H.P. = 7·9 kts. *when submerged.* Carry 18 tons of fuel. Radius: 1,360 miles at 6·5 kts. *on surface;* 96 miles at 4 kts. *when submerged.*



X Class.

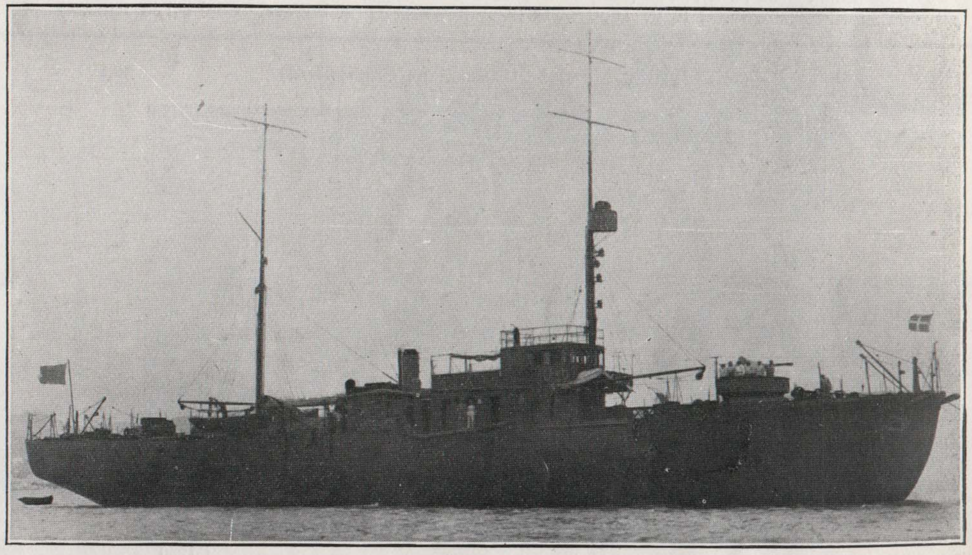
## Minelayers. (*Navi Posamine.*)

*Note.*—Cruisers *Bari, Taranto, Quarto*; Surveying Vessel *Cariddi*, certain Transports and Water Carriers, all Destroyers and 8 Submarines are fitted for minelaying.



Lepanto. 1934.

6 *Ostia* type: **AZIO** (May 4th, 1927), **LEGNANO** (May, 1926), **LEPANTO** (May 22nd, 1927), **DARDANELLI** (1925), **MILAZZO** (1925), **OSTIA** (1925). All ordered 1924, the first three from Cant. Nav. Riuniti, Ancona, the second three from Cant. Nav. Triestino, Monfalcone. Displacement, 615 tons (*full load*, 850 tons). Dimensions: 204 × 28½ × 8½ feet. H.P.: 1,500 = 15 kts. Oil fuel in first 3, coal in others. Guns: 2—4 inch, 35 cal., **1**—3 inch AA., **2** M.G. First three employed on colonial service, and have an effective radius of 3,500 miles. All fitted for sweeping if required. 80 mines carried.

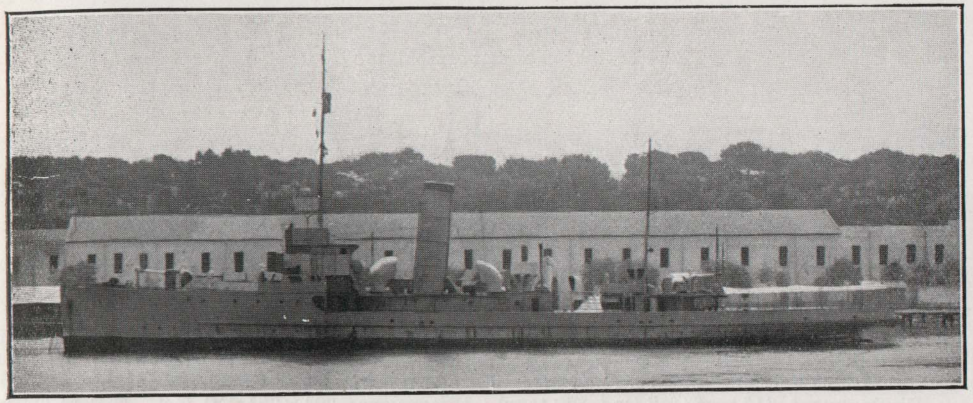


Buccari. 1928 *Photo, Pucci.*

4 *Fasana* type: **BUCCARI** (1926), **DURAZZO** (1st April, 1926), **FASANA** (1924), **PELAGOSA** (1926). All built at Castellammare. 531 tons. Dimensions: 192 (*p.p.*) × 32 × 5·7 feet. Engines: 2 sets Fiat Diesels, together 700 B.H.P. = 10 kts. Guns: **1**—3 inch AA. Carry 54 mines.

## Minelayers—*continued*.

**ALBONA** (1919), **LAURANA** (1920), **ROVIGNO** (1919), (ex-Austrian Minesweepers *M.T.* 130—132). Built at Ganz-Danubius Yard. 113 tons. Guns: **1**—3 inch. Machinery: Triple expansion. H.P.: 280 = 11 kts. 1 Yarrow oil-fired boiler.



VIESTI. 1926 *Photo, by courtesy of Ministry of Marine.*

**CROTONE** (ex-*Abastro*, ex-German *M* 120), **VIESTI** (ex-*Meteo*, ex-German *M* 119.) Built at Neptun Yard, Rostock, 1918, and taken over by Italy in 1919. Displacement: 359 tons. Dimensions: 182 (*w.l.*), 192 (*o.a.*) × 23½ × 7 feet. Guns: **2**—4 inch. Machinery: Triple expansion. 2 shafts. I.H.P. 1600 = 14 kts. 2 water-tube boilers. Coal: 125 tons.

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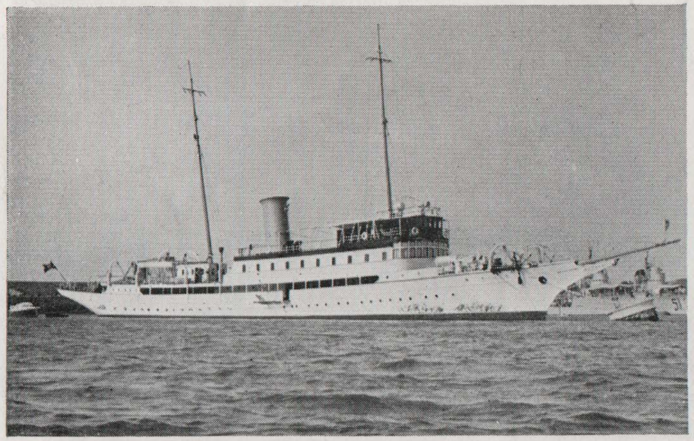
## Admiralty Yacht (Classed as *Cannoniera*).

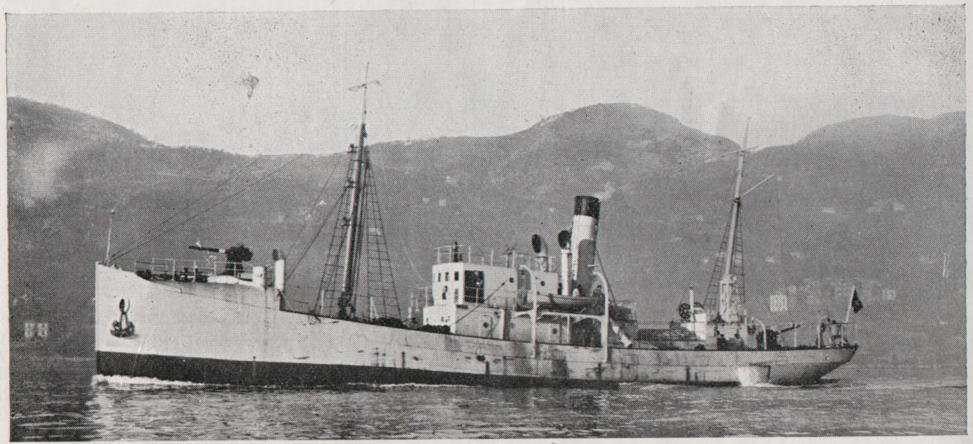


1936

**AURORA** (ex-*Marechiaro*, ex-Austrian *Taurus*, ex-*Nirvana*). (D. & W. Henderson, Glasgow, 1914). Reconstructed 1928 Displacement: 935 tons (Std). Dimensions: 261 (*o.a.*) × 30 × 14 feet (*mean*). Guns: **2**—57 mm. Parsons geared turbines. 2 shafts. 2 Thornycroft boilers. H.P.: 3,255 = 14·7 kts. Oil: 117 tons.

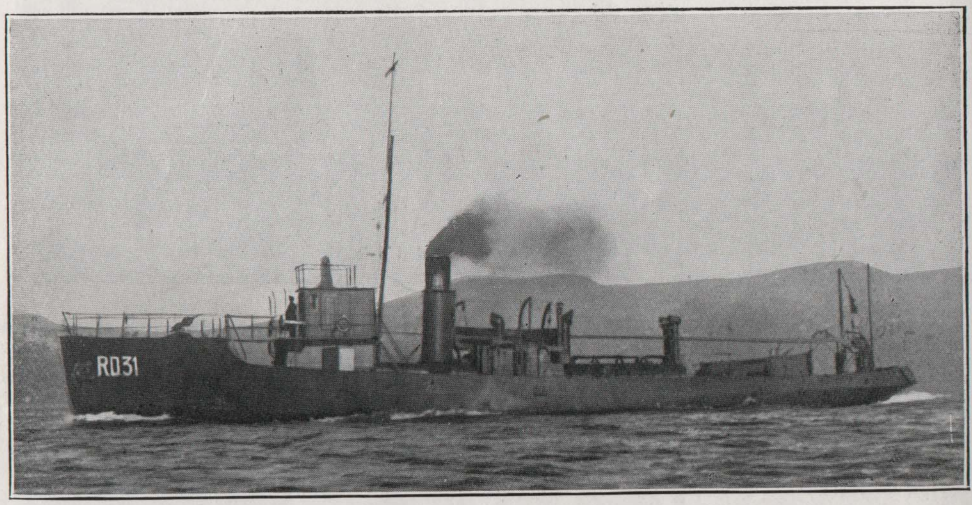
## Mine Sweepers

A minesweeper was laid down at C.N.R., Ancona in 1937.



G. BERTA. Added 1936.

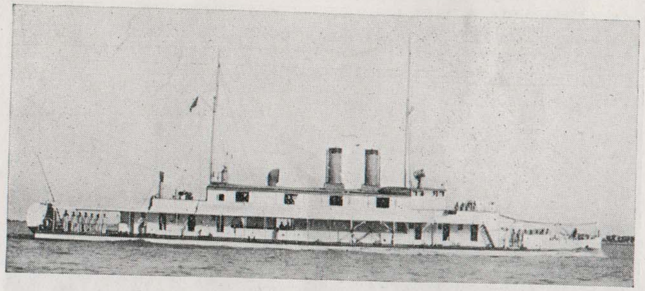
**GIOVANNI BERTA** (ex-*Triglia*), **GIUSEPPE BIGLIERI** (ex-*Dentice*), **MARIO SONZINI** (ex-*Acciuga*), **PELLEGRINO MATTEUCCI** (ex-*Merluzzo*). All built 1924, the first by Schiffbau Ges. Unterweser, the other 3 by Deutsche Werft. *Standard* displacement: 620 tons. Dimensions: 138¾ × 24¼ × 12¼ feet. Guns: **2**—3 inch. Machinery: Triple expansion. 1 shaft. H.P.: 450 = 9 kts.



RD 31. 1928 *Photo, Pucci.*

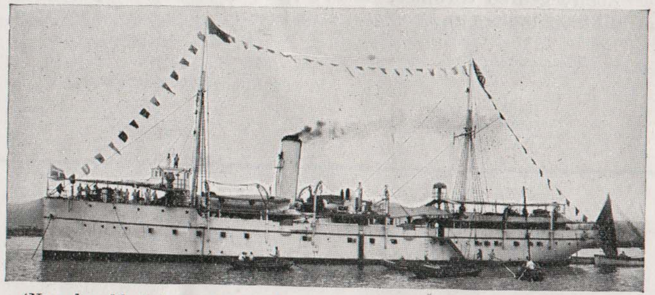
38 small tugs, of *ca.* 150 tons, bearing various numbers, RD 4 to 57, are also fitted for minesweeping. Majority are H.P. 800 = 13 kts. Most armed with **1**—3 inch AA.

## Gunboats—(*Cannoniere*).



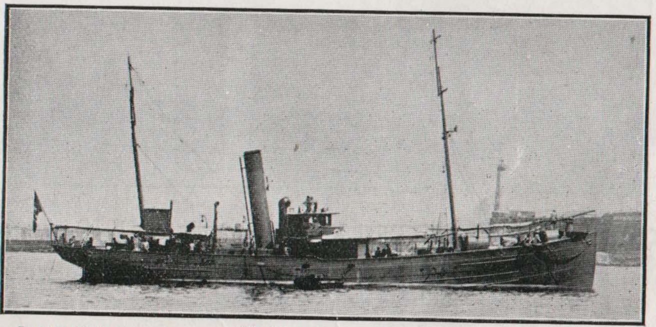
1933 *Photo, Capt. Dante Solimbergo, R.I.N.*

**ERMANNO CARLOTTO** (Shanghai Dock & Engineering Co. 1921). Shallow-draught river gunboat. 180 tons. Dimensions: 160 × $24\frac{1}{2}$ × $2\frac{3}{4}$ feet. Guns: 2—3 inch AA., **6** M.G. Designed H.P.: 1,100 = 14 kts. 2 Yarrow boilers. Complement: 60. Oil: 56 tons. Twin screws in tunnels.



(Now has black-topped funnel). 1920 *Photo, A. Boo, Cheefu.*

**SEBASTIANO CABOTO** (Palermo, 1912). Displacement: 778 tons. Complement, 104. Dimensions: 196·8 × 31·8 × 9 feet. Guns: **6**—3 inch, **4** M.G. H.P., 1200 = 13 kts.



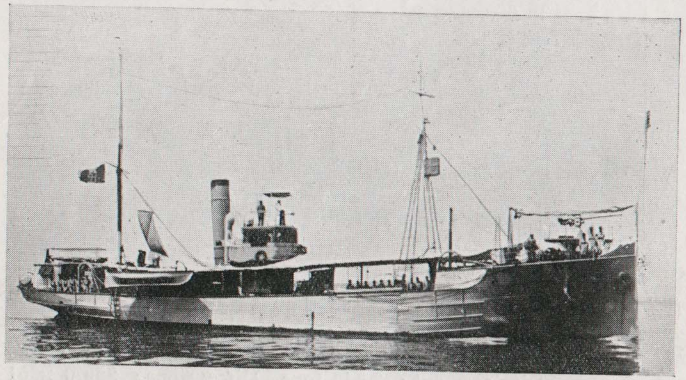
PALMAIOLA. 1925 *Photo, by courtesy of the Ministry of Marine.*

**PALMAIOLA** (ex-*Mary*) (Hull, 1902). 472 tons. Dimensions: 133 × $19\frac{1}{2}$ × 12 feet. H.P.: 380 = 8·5 kts. Guns: 1—3 inch AA. (Purchased, 1916).

## Gunboats—*continued.*

**VALOROSO** (ex-*Bayard*) (Glasgow, 1908). Purchased in 1915. 338 tons. Guns: **1**—3 inch AA., **1** M.G. H.P. 477 = 10 kts.

The following were all acquired from Japan, 1917. Some carry minesweeping gear.

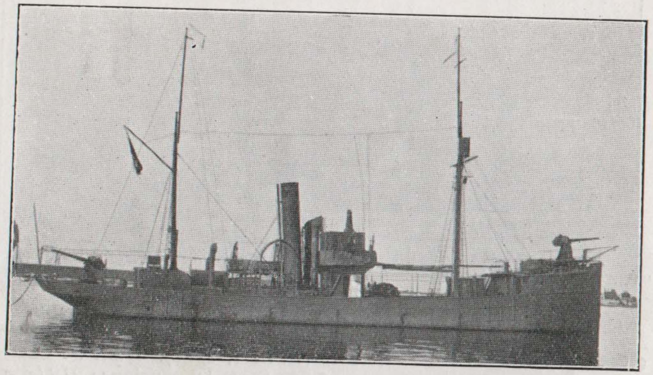


Added 1936.

**ALULA** (ex-*G* 23, ex-*Sekijyo Maru*, Osaka, 1912). 308 tons. Guns: **1**—3 inch AA. H.P. 500 = 13 kts.

**PORTO CORSINI** (ex-*G* 15, ex-*Fumi Maru*). (Osaka, 1912). 280 tons. Guns: **2**—3 inch AA. H.P.: 300 = 9 kts.

**RIMINI** (ex-*G* 16, ex-*Fuku Maru*). (Osaka, 1912). 319 tons. Guns: **1**—3 inch AA. H.P.: 350 = 9·5 kts.

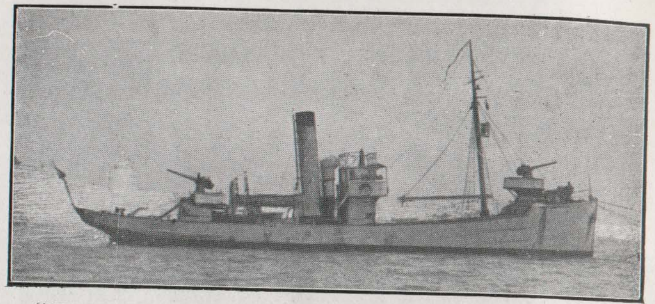


GALLIPOLI. 1929 *Photo, by courtesy of Ministry of Marine.*

**GALLIPOLI** (ex-*G* 31, ex-*Hakata Maru No.* 8). (Osaka, 1911). 310 tons. Guns: **2**—3 inch AA. H.P.: 350 = 10 kts.

**OTRANTO** (ex-*G* 36, ex-*Sumiye Maru*, ex-*Mariveles*). (Middlesbrough, 1911). 290 tons. Guns: **2**—3 inch AA. H.P. 550 = 9·5 kts.

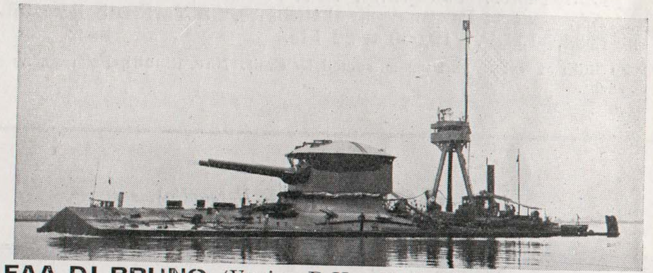
## Gunboats—*continued.*



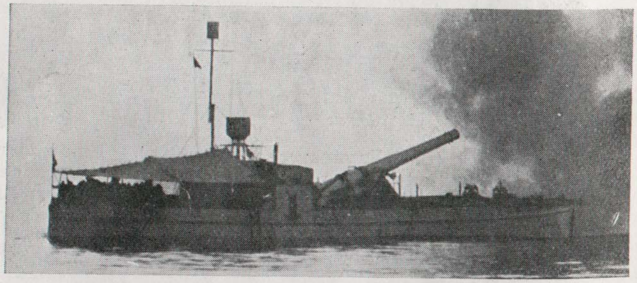
CIRENE. 1925 *Photo, by courtesy of the Ministry of Marine.*

**CIRENE** (ex-*G* 13, ex-*Hoyo Maru*). (Kobe, 1912). 383 tons. Guns: **2**—3 inch AA., **1** M.G. H.P.: 300 = 9 kts.

## Monitors. (Classed as *Cannoniere.*)



**FAA DI BRUNO** (Venice D.Y., 1917). 2,796 tons. Dimensions: 220 (*o.a.*), 182 (*p.p.*) × $88\frac{1}{2}$ × 6 feet. Guns: **2**—15 inch, 40 cal., **6**—3 inch. Machinery: Triple expansion. 2 shafts. H.P. 465 = 3·3 kts.

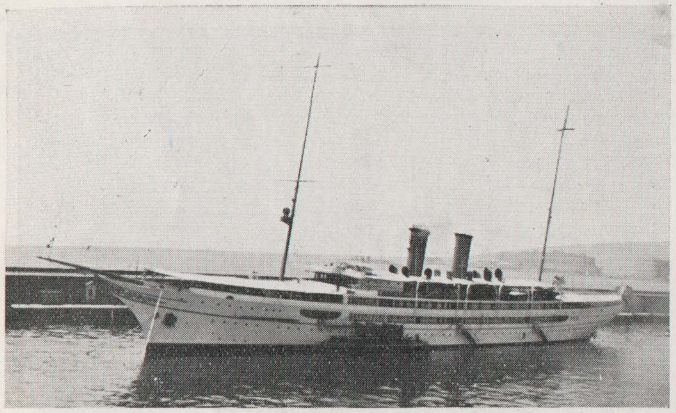


**MONTE GRAPPA, MONTELLO** (Castellammare, 1918). 605 tons. Dimensions: $131\frac{1}{4}$ × $32\frac{3}{4}$ × $5\frac{2}{3}$ feet.

**MONTE CENGIO, MONTE NOVEGNO** (Castellammare, 1919). 502 tons. Dimensions: $131\frac{1}{4}$ × $32\frac{3}{4}$ × $4\frac{3}{4}$ feet.

In all 4: Guns: **1**—12 inch., **2**—3 inch. Fiat Diesels. 2 shafts. B.H.P. 355 = 7 kts. Complement, 45.

## Royal Yacht.

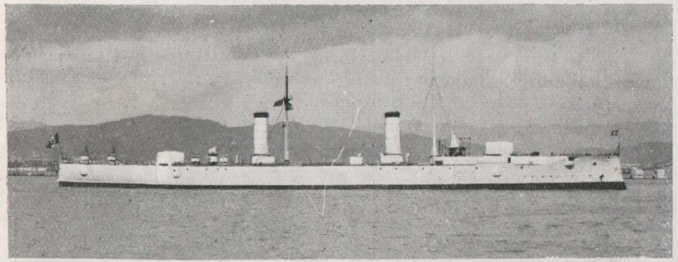


SAVOIA. 1937, *W. H. Davis, Esq.*

**SAVOIA** (ex-*Citta di Palermo*, 1st September, 1923). 5280 tons. Dimensions: 390 (*w.l.*) × 49 × 17 feet. Guns: 4—3 inch AA. 2 sets Parsons geared turbines. 8 Yarrow boilers, oil-fired. I.H.P.: 12,000 = 22 kts.

*Note.*—Built at Spezia and reconstructed by Cant. Nav. Riuniti, Palermo, as a yacht.

## Target Ship. (*Nave Bersaglio*).



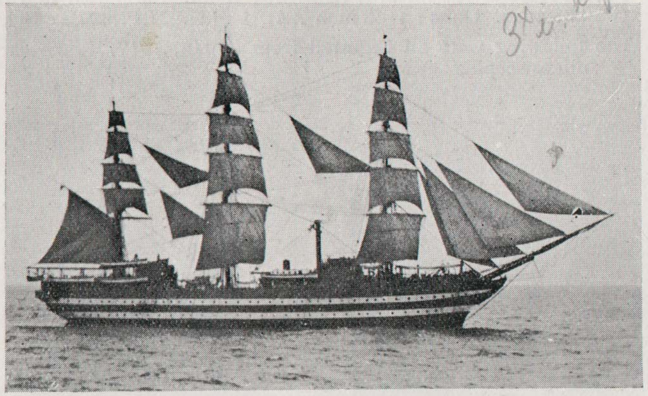
1936, *Official.*

**SAN MARCO** (Castellammare, Dec., 1908). Ex-armoured cruiser converted into a wireless controlled target ship. Displacement: 8,600 tons. Dimensions: 430 (*p.p.*), 462¼ (*o.a.*) × 69 × 22¾ feet. Armament removed. Machinery: Parsons turbines. 2 shafts. S.H.P. 13,000 = 18 kts. 8 Blechynden boilers.

*Note.*—Destroyer *Impavido* serves as control vessel.

## Training Ships (*Navi Scuola*).

3х м. корабли

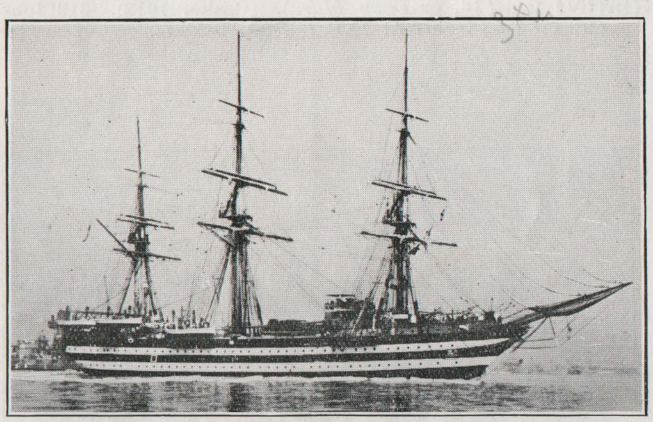


1932 *Photo, Capt. Ferratti.*

Ewo

**AMERIGO VESPUCCI** (March 22, 1930). Built at Castellammare. Displacement: 3,543 tons. Dimensions: 229·6 × 51 × 22 feet. Guns: 4—3 inch AA., 2 M.G. Machinery: Two Fiat Diesels, with electric drive to 2 Marelli motors. 1 shaft. H.P.: 1,900 = 10·5 kts. Sail area: 22,600 sq. feet. Complement: 400 + 150 midshipmen.

3х м. корабли



C. COLOMBO. 1928 *Photo, Capitan M. Mille.*

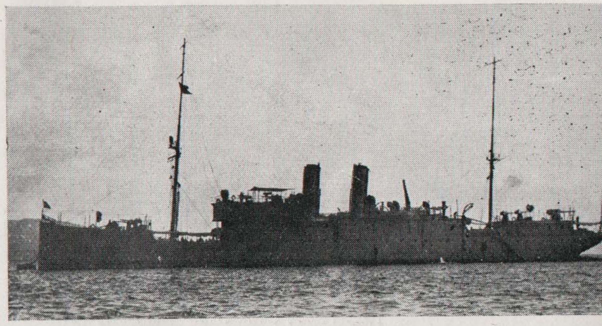
**CRISTOFORO COLOMBO** (April 4, 1928). Built at Castellammare. Displacement: 2,787 tons. Dimensions: 218 (*p.p.*) × 48½ × 20⅓ feet. Guns: 4—3 inch AA., 2 M.G. Machinery: 2 Tosi Diesels with electric drive to 2 Marelli motors. H.P.: 1,600 = 10 kts. 2 shafts. Fuel: 103 tons. Sail area: 18,700 sq. feet. Radius: 6,000 miles at 8 kts.

1740-

*Notes.*—*C. Colombo* usually depends on sail power, machinery being treated as auxiliary. Hull, masts and yards, are all of steel. Loud speakers and echo sounding gear form part of her equipment. About 140 midshipmen and cadets (or an equal number of boys) are usually carried.

## Submarine Depot Ships.

(*Navi per appoggio sommergibili.*)

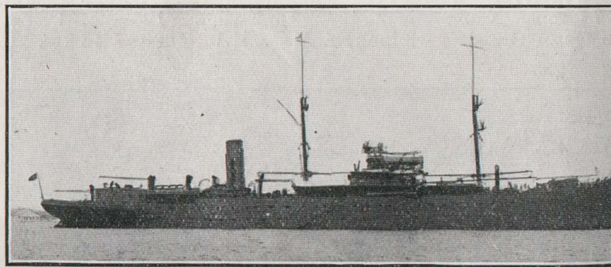


1932 *Phot*

**ALESSANDRO VOLTA** (ex-*Caprera*, 1921).
**ANTONIO PACINOTTI** (ex-*Citta di Sassari*, 1922).

Both reconstructed at Castellammare D.Y., 1924–25. 2,727 t Dimensions: 288¾ × 36 × 15 feet. Guns: 4—3 inch Zoelly geared turbines. H.P.: 7,500 = 19 kts. 2 cylind oil-fired boilers in *Pacinotti*, 4 in *Volta*.

## Repair Ship (*Nave Officina*)

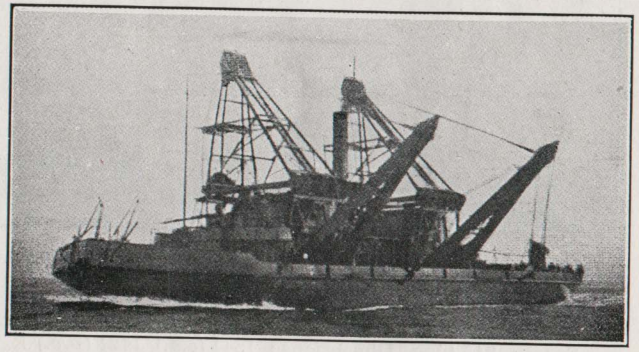


*Official* 1928 *Photo*

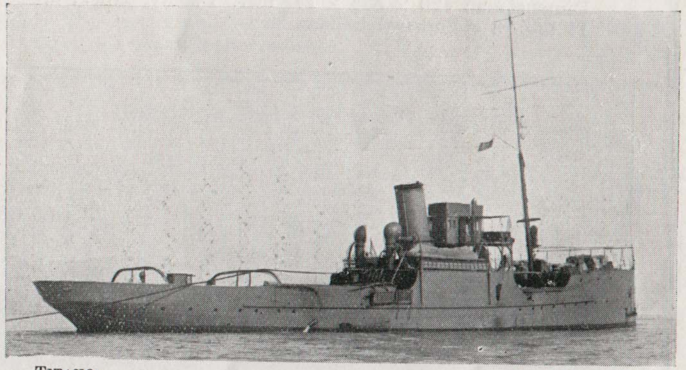
**QUARNARO** (Scoglio Ulivi Yard, Pola, July 30, 1924). 7 tons. Dimensions: 374 × 48½ × 20 feet. Guns: 3—4 AA. Machinery: Triple expansion. 1 shaft. H.P. 2,30 11·5 kts. 3 cylindrical boilers, oil-fired.

## Submarine Salvage Vessels.

(*Navi per salvataggio Sommergibili.*)



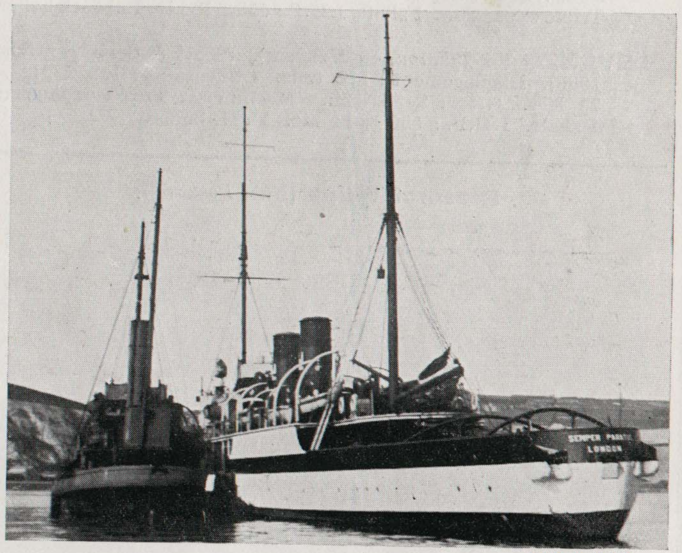
**ANTEO** (Smulders, Schiedam, 1912). Special Salvage Ship for Submarines. 1,252 tons. Dimensions: 164 × 78¾ × 6¾ feet. I.H.P., 720 = 8 kts. 2 screws. 2 cyl. boilers. 2 cranes, each lifting 200 tons.



TITANO. *Added* 1936.

**TITANO** (Ansaldo, 1913). 828 tons. Guns: 1—3 inch. Machinery: Triple expansion. H.P. 1,850 = 14 kts. 2 screws. 2 Thornycroft boilers. Coal: 160 tons.

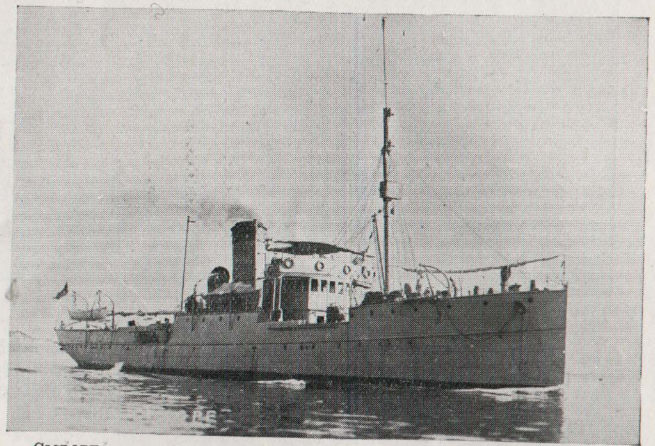
## Salvage Vessels (*Navi Salvataggio*)



Added 1936.

**TESEO** (ex-*Semper Paratus*, ex-H.M.S. *Buttercup*). (Barclay, Curle & Co., Glasgow, 1915.) 1,250 tons. Dimensions: 265 × 33½ × 11 feet. Guns: 2—3 inch. Machinery: Triple expansion. 1 shaft. H.P. 2,300 = 16 kts. 2 cylindrical boilers. Coal: 250 tons.

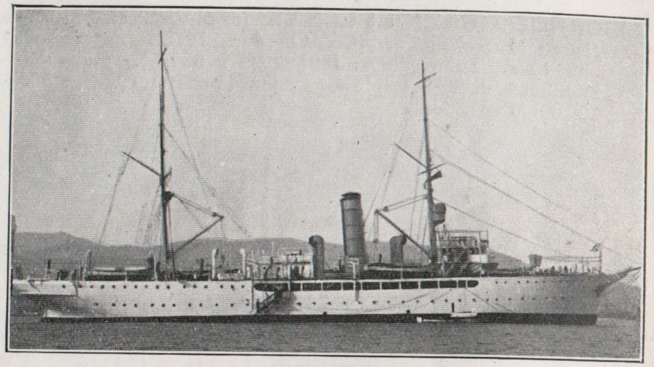
*Note.*—This ship was purchased in 1932



CICLOPE. 1930 *Photo, Capitan M. Mille.*

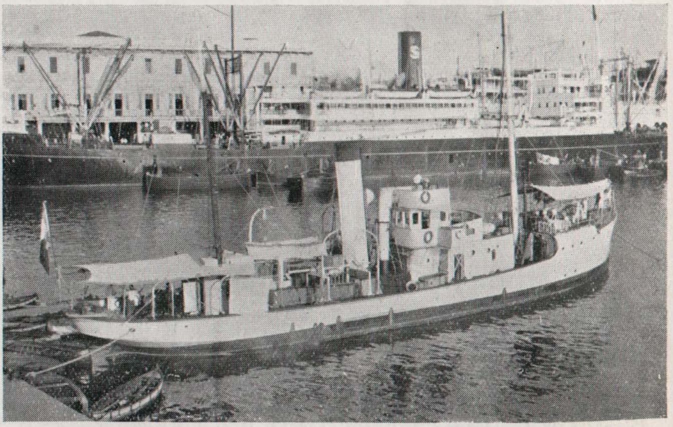
**CICLOPE** (Pattison, Naples, 1903). 1050 tons. Guns: 1—3 inch. H.P.: 1,900 = 13·5 kts. 2 shafts. 2 Thornycroft boilers.

## Surveying Vessels (*Navi Idrografiche*).



AM. MAGNAGHI. 1929 *Photo, Capitan M. Mille, Sp.N.*

**AMMIRAGLIO MAGNAGHI** (Odero, Aug., 1914). 1,506 tons. Complement: 137. Dimensions: 229½ (*pp.*), 273 (*o.a.*) × 37½ × 12½ feet. Guns: 4—3 inch. I.H.P.: 950 = 10·5 kts. Machinery: 2 sets vertical triple expansion. Boilers: 4 cylindrical. (Was originally laid down as a Passenger Steamer).



1937, *W. H. Davis, Esq.*

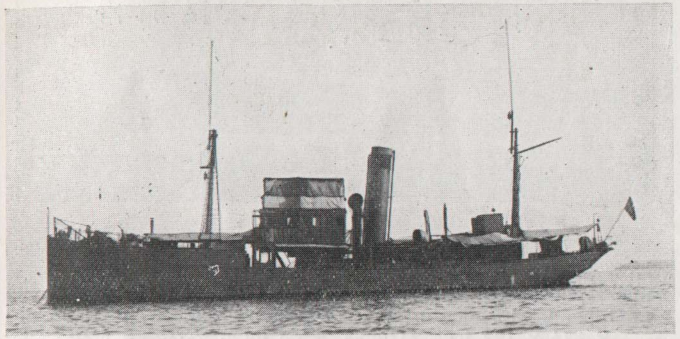
**CARIDDI** (ex-*G* 21, ex-*Nishiso Maru No.* 1). (Kawasaki Co., Kobe, 1911; purchased 1917.) 330 tons. Guns: 1—3 inch. H.P. 450 = 10 kts. Is fitted for minelaying.

## Lighthouse Tenders

(*Naviglio addetto al servizio fari.*)

Mostly ex-Trawlers, purchased during 1917.

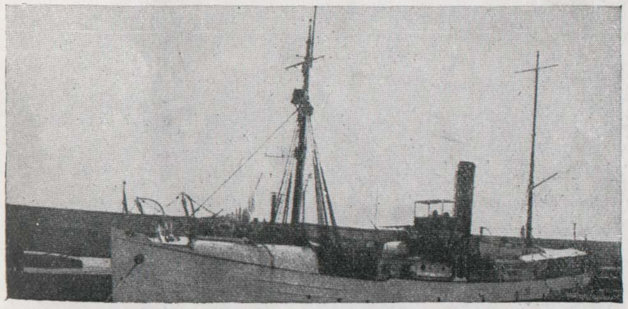
**RICCARDO GRAZIOLI LANTE** (ex-*Abisso*, ex-*Falco*, ex-*Petrel*), (J. Duthie Torry Co., Aberdeen, 1912). Displacement: 295 tons. Dimensions: $139\frac{3}{4}$ × 22 × 9 feet. Guns: **2**—3 inch. Machinery: Triple expansion. 1 shaft. I.H.P.: 550 = 12 kts. 1 cyl. boiler.



1928, *Pucci.*

**DANTE DE LUTTI** (ex-*G* 34, ex-*Tomiye Maru*). (Mitubisi, Nagasaki, 1911). Displacement: 266 tons. Dimensions: 118 × 21 × $8\frac{1}{2}$ feet. Guns: **2**—3 inch. Machinery: Triple expansion. 1 shaft. I.H.P.: 400 = 12 kts. 1 cyl. boiler.

**MARIO BIANCO** (ex-*G* 24, ex-*Fukuhaku Maru No.* 6, ex-*Yoshida Maru No.*1). (Kawasaki, Kobe, 1911). Displacement: 258 tons. Dimensions: 109 × 23 × 8 feet. Guns: **2**—3 inch. Machinery: Triple expansion. 1 shaft. I.H.P.: 340 = 11·5 kts. 1 cyl. boiler.



SCILLA. 1929 *Official Photo.*

**SCILLA** (ex-*Panaria*, ex-*Fantasma*, ex-*Lord Charles Beresford*). (A. Hall & Co., Aberdeen, 1904; purchased 1916). 350 tons. Guns: **1**—3 inch. Machinery: Triple expansion. 1 shaft. H.P.: 450 = 9 kts.

## Lighthouse Tenders—*continued*

**LIDO** (Castellammare, 1907). Displacement: 226 tons. Dimensions: 116 × $21\frac{1}{3}$ × 7 feet. Guns: **1**—3 inch. Machinery: Triple expansion. 1 shaft. I.H.P.: 550 = 12 kts. Babcock boiler.

**LEVANZO** (ex-*Tiburon*, ex-*Nankeen*), (Scott & Sons, Bowling, 1906). Displacement: 226 tons. Dimensions: 122 × $21\frac{1}{3}$ × $7\frac{1}{2}$ feet. Guns: **2**—3 inch. Machinery: Triple expansion. 1 shaft. I.H.P.: 500 = 11 kts. 1 cyl. boiler.

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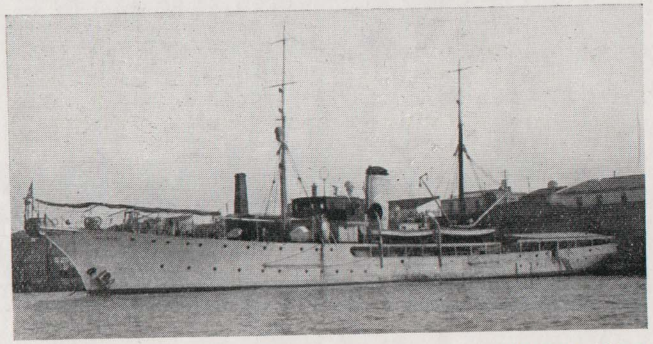
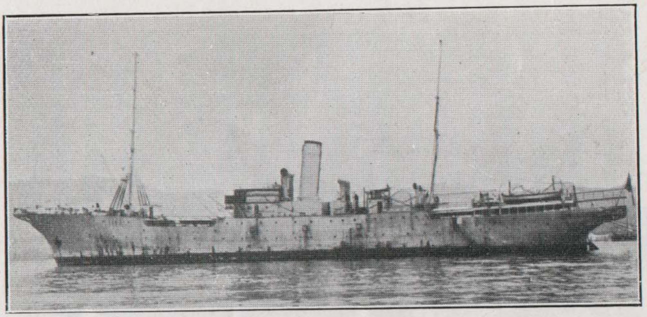
## Research Ships (*Navi Posacavi*).



1932 *Photo, Official.*

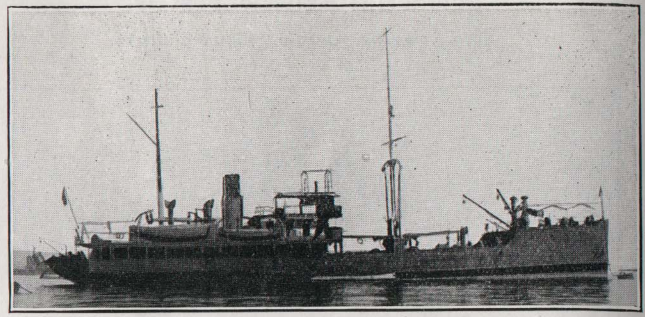
**GIASONE** (Cantiere Breda, Venice, 1929). Displacement: 1,191 tons. Dimensions: 210 (*pp.*), 251 (*o.a.*) × $33\frac{3}{4}$ × 13 feet. Guns: **2**—3 inch AA. Machinery: Triple expansion. 2 shafts. Boilers: 2 water tube. H.P.: 2,500 = 15 kts.



CITTA DI MILANO. 1929 *Official Photo.*

**CITTA DI MILANO** (ex-*Grossherzog von Oldenburg*). (Schichau, Elbing, 1905). 5,295 tons. Dimensions: $332\frac{3}{4}$ (*o.a.*), 305 (*pp.*) × $41\frac{1}{3}$ × 22 feet. Guns: 2 - 37 mm. AA. Triple expansion engines. 3 cylindrical boilers. H.P.: 1,500 = 11 kts. (Originally intended for cable laying.)

## Transports (*Navi Trasporto*).

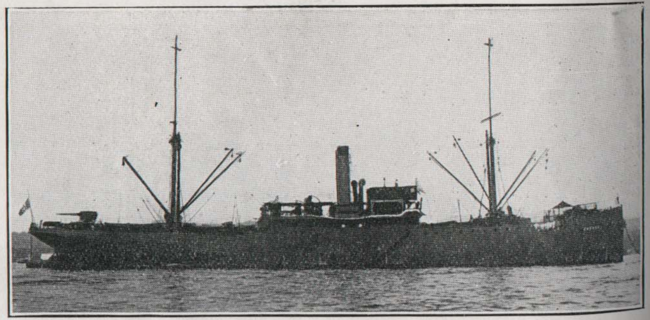


BUFFOLUTO. 1928 *Photo, Pucci.*

**PANIGAGLIA** (10th July, 1923), **BUFFOLUTO** (1924) **VALLELUNGA** (1924). All built by Ansaldo San Giorgio Spezia. 915 tons. Dimensions: $184\frac{1}{2}$ (*o.a.*), $172\frac{1}{4}$ (*p.p.*) × 29 × 11 feet. Guns: **2**—3·9 inch, 47 cal., **1** M.G. Triple expansion engines. 2 Thornycroft boilers. H.P.: 1,400 = 11 kts Radius at this speed, 960 miles. Classed as "*Navi Trasporto Munizioni.*" Fitted for minelaying.

**TRIPOLI** (Odero, 1922). 2,460 tons. Dimensions: $205\frac{3}{4}$ (*o.a.*) × $31\frac{3}{4}$ × 15 feet. Guns: None at present. Triple expansion engines. H.P.: 600 = 8·5 kts.

**GIANICOLO** (ex-*Salina*), (Monfalcone, 1915). 10,000 tons Dimensions: 420 × $53\frac{3}{4}$ × $24\frac{3}{4}$ feet. 1 shaft. H.P.: 2,800 = 11 kts. 3 cylindrical boilers.



CHERSO. 1928 *Photo, Pucci.*

**CHERSO** (ex-*Amalfi*) **LUSSIN** (ex-*Marsala*). (A. G. Neptun Rostock, 1912). Displacement: 3,988 tons. Dimensions 300 × 41 × $17\frac{1}{2}$ feet H.P.: 1,100 = 10·5 kts. Guns: 4—4·7 inch. **2**—3 inch AA. Classed as "*Navi Trasporto Materiale.*" Cargo : 3,000 tons.

## Transports—*continued*

**ASMARA** (ex-*Nasina*, ex-*Meissonier*). (Russell, Glasgow, 1915). Purchased 1935. Displacement: 6,850 tons. Dimensions: 454¾ × 55¾ × 23¾ feet. Machinery: Quadruple expansion. 2 shafts. H.P. 4,300 = 12·5 kts. 4 cyl. boilers. Classed as *Nave Frigorifere*.

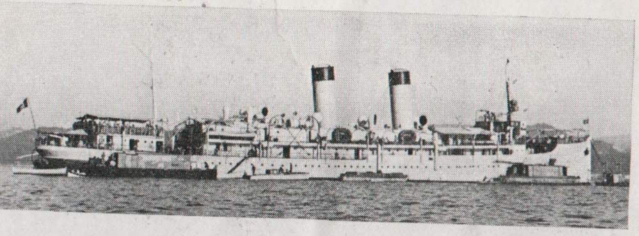
**VALGIUBA** (ex-*Ascensione*, ex-*Mediterraneo*). (Doxford, Sunderland, 1911). Displacement: 8,720 tons. Dimensions: 380 × 50 × 23½ feet. Machinery: Triple expansion. H.P. 2,000 = 8 kts. 2 cyl. boilers.

*Photo Wanted*

**ENRICHETTA** (ex-*Presto*, ex-*Alberto Fassini*, ex-*Kossuth Ferencz*). (J. L. Thompson & Co., Sunderland, 1907). Displacement: 8,360 tons. Dimensions: 399 × 50 × 22 feet. Machinery: Triple expansion. H.P. 1,500 = 9·5 kts. 2 cyl. boilers.

*Note.*—There are a number of smaller transports, of the coasting type, not worth inclusion here.

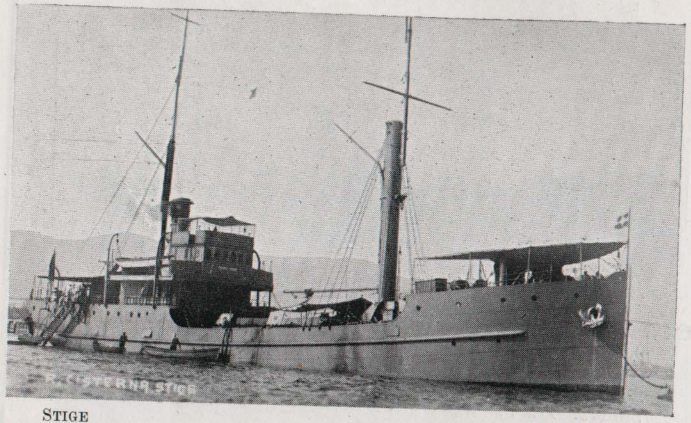
## Distilling Ship (*Nave Distillatrice*),



1934 *Photo.*

**TTA DI SIRACUSA** (Odero, 1910). 3,593 tons. Dimensions: 363½ (*o.a.*) × 42⅓ × 16½ feet. Guns: **2**—3 inch AA. Machinery: Triple expansion. Boilers: 10 cylindrical. H.P.: 12,000 = 20 kts. Is fitted with Ansaldo distilling plant to produce 190 tons of fresh water daily.

## Petrol Carrier (*Navi Cisterna per Benzina*).

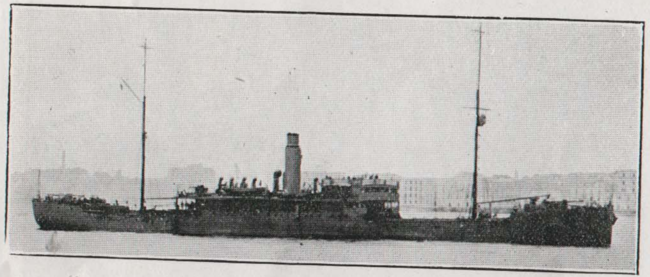


STIGE

*Added* 1936.

**STIGE** (Spezia Dockyard, 1924). 1,343 tons. Dimensions: 173⅓ × 30½ × 13 feet. Guns: **1**—4·7 inch, **1**—3 inch. Tosi Diesels. H.P.: 650 = 8 kts.

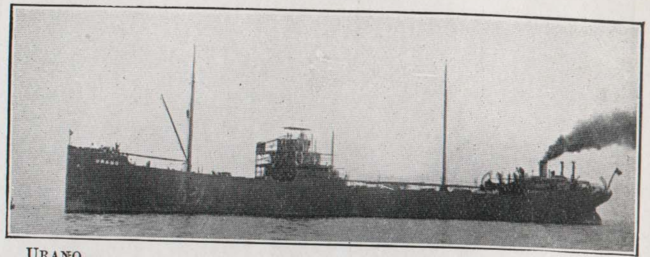
## Oilers (*Navi Cisterna per Nafta*).



1928 *Photo, by courtesy of Ministry of Marine.*

**TARVISIO** (Castellammare, April 11, 1927). 10,915 tons. Dimensions: 372⅓ × 59 × 22¾ feet. Guns: **4**—4·7 inch, **2**—3 inch AA. Parsons turbines. 3 oil-fired cylindrical boilers. H.P.: 2,600 = 10 kts. Cargo: 8,000 tons. Protective arrangements as *Brennero* in a later column.

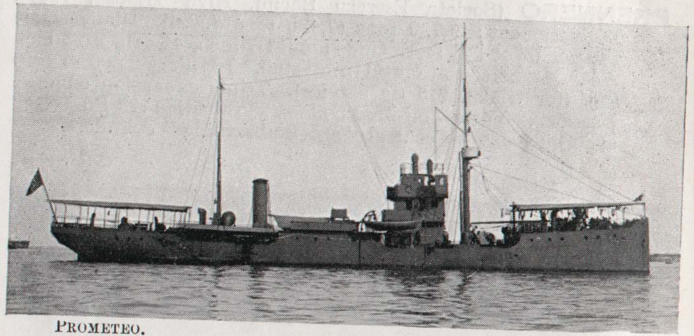
## Oilers—*continued*.



URANO.

*Photo added* 1927.

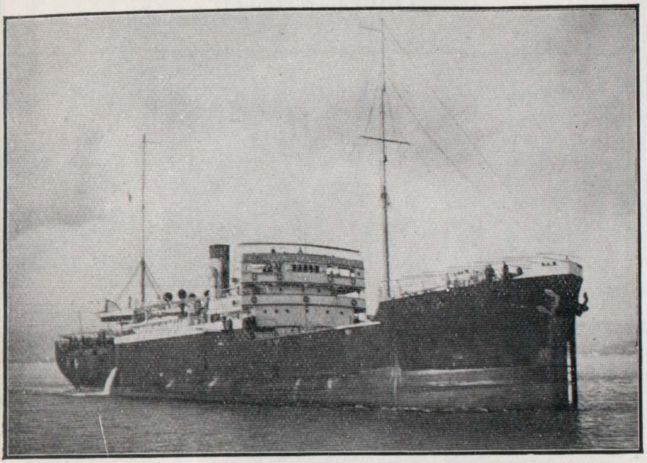
**URANO** (Deutsche Werke, Kiel, 1922). Built under War Reparations account. 10,550 tons. Dimensions: 414¾ × 54 × 23½ feet. Guns: **2**—4·7 inch, **2**—3 inch AA., **2** M.G. Diesels. 2 shafts. H.P.: 2,000 = 11 kts. Cargo: 8,000 tons.



PROMETEO.

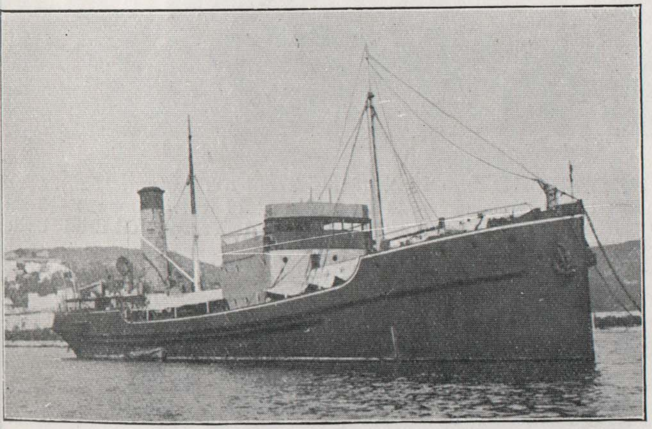
1936.

**PROMETEO** (ex-*Ostia*). (Stab. Tecnico Triestino, 1920). 1,080 tons. Dimensions: 179½ × 26¼ × 11 feet. Guns: **2**—3 inch AA. Triple expansion engines. 1 Yarrow oil-fired boiler. H.P.: 600 = 10 kts.



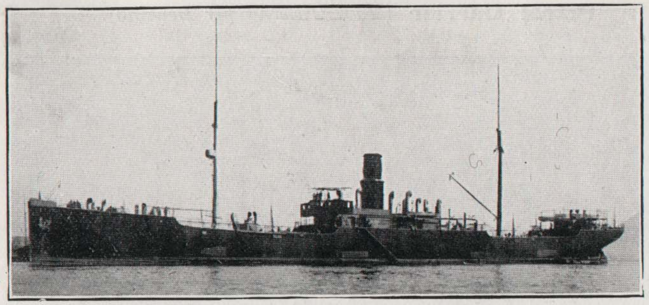
BRENNERO. 1925 *Photo, by courtesy of Ministry of Marine.*

**BRENNERO** (Societa Esercizi Bacini, Riva Trigoso, 1921). Displacement: 9,790 tons (7,400 tons *d.w.c.*). Dimensions: 343½ × 59 × 24⅓ feet. Guns: **4**—4·7 inch, 45 cal., **2**—3 inch AA. Magazines are well protected. I.H.P.: 2,600 = 10·9 kts. (for trials), 9·5 (in service). Triple expansion engines. 1 screw. 2 Yarrow oil-fired boilers. Protection: "Pugliese" type bulges, with central "shock-absorbing" cylinders.



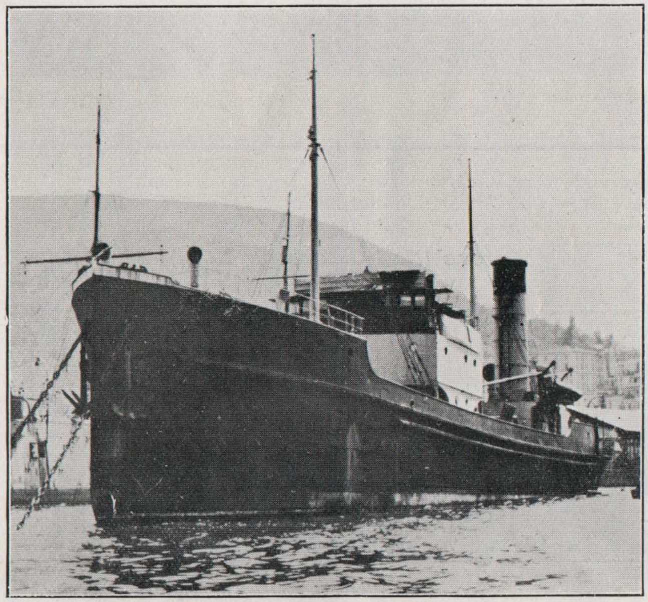
NIOBE. 1929 *Photo, by courtesy of Ministry of Marine.*

**NIOBE** (ex-German *Sylt*, Reiherstieg Yard, Hamburg, 1916). 3,160 tons. Dimensions: 263⅓ × 37½ × 15 feet. Triple expansion engines. 2 Oil-fired cylindrical boilers. H.P.: 1,000 = 11 kts. Guns: **3**—3 inch AA. Cargo capacity: 2,000 tons.



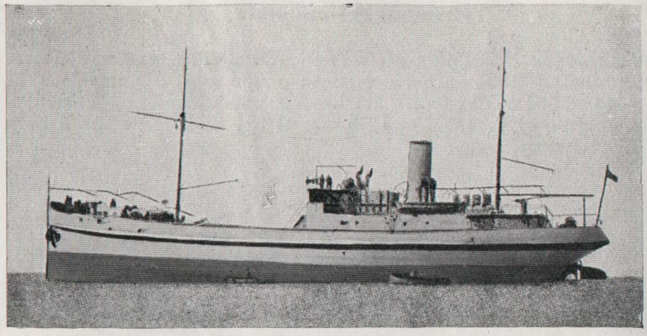
NETTUNO. 1928 *Photo, by courtesy of Ministry of Marine.*

**GIOVE, NETTUNO** (Cant. Nav. Riuniti, Palermo, 1916). 9,540 tons. Dimensions: 416½ × 51½ × 24 feet. Guns: *Giove*, **2**—4·7 inch, **2**—3 inch AA.; *Nettuno*, **3**—4·7 inch, **2**—3 inch AA. Triple expansion engines. 4 Yarrow oil-fired boilers. H.P.: 4,200 = 14 kts. Cargo: 6,000 tons oil fuel.



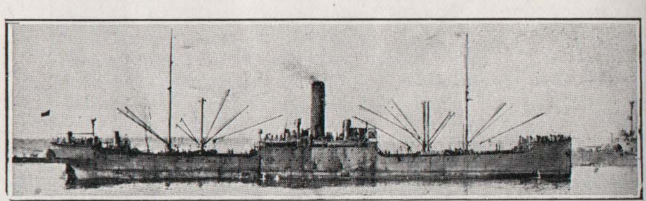
CERERE. 1929 *Photo, by courtesy of Ministry of Marine.*

**CERERE** (ex-*Baltrum*, Kiel, 1915). 2,530 tons. Dimensions: 246⅓ × 34½ × 14½ feet. Guns: **2**—3 inch AA. Triple expansion engines. 2 coal-fired cylindrical boilers. H.P.: 800 = 10 kts. Capacity: 1,500 tons.

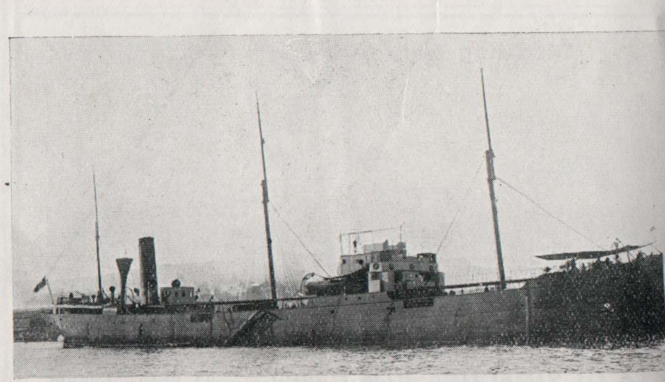


COCITO

**COCITO, LETE** (Riva Trigoso, 1914–15). 1,162 tons. Dimensions: 168⅓ × 30½ × 11 feet. Guns: **3**—3 inch AA. Tosi Diesels. H.P. 750 = 10 kts. Cargo: 760 tons.



**BRONTE** (Orlando, 1904). 8,238 tons. Complement, 79. Dimensions: 391 × 47 × 23 feet. Guns: **2**—3 inch, **2**—3 inch AA. With full cargo: 3,700 I.H.P. = 11·5 kts.; with reduced cargo 4,300 I.H.P. = 14·5 kts. Triple expansion engines. 2 screws. **2** cylindrical boilers. Carries 6,000 tons. Own fuel: 550 tons. *Sterope* (sister ship), lost during War.



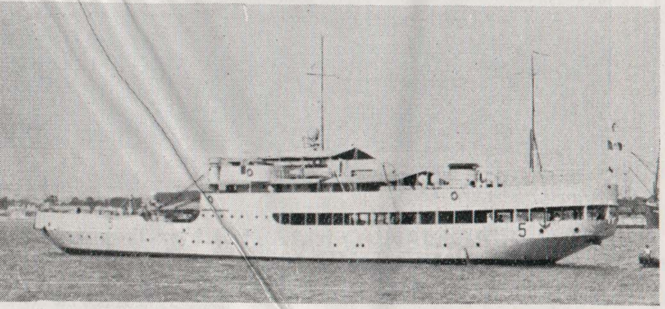
1936, *Pucci.*

**MARTE** (ex-Austrian *Vesta*) (Armstrong, 1892). 2,884 to Dimensions: 301 × 37½ × 13 feet. Guns: **2**—3 inch AA. Triple expansion engines. 2 coal-fired cylindrical boilers. I.H.P.: 1,200 = 10 kts.

## Water Carriers (*Navi Cisterna per Acqua*).

**ISONZO,** (June 9, 1937) **PO, VOLTURNO** (1936). *Po* built by C. N. Riuniti, Ancona, other 2 by Tirreno. Displacement: 1,368 tons. Dimensions: 265¾ × 38¾ × 7 feet. Guns: **2**—4·7 inch. **4** M.G. AA. Machinery: Triple expansion. 1 shaft. H.P.: 1,700 = 11·5 kts. Oil-fired watertube boilers. Capacity: 2,000 tons.

**SCRIVIA, TIRSO** (Tirreno, 1937). 545 tons. Dimensions: 174 × 33 × 7¾ feet. **4** M.G. (Fitted for minelaying). Fiat Diesels. H.P.: 600 = 9·5 kts.

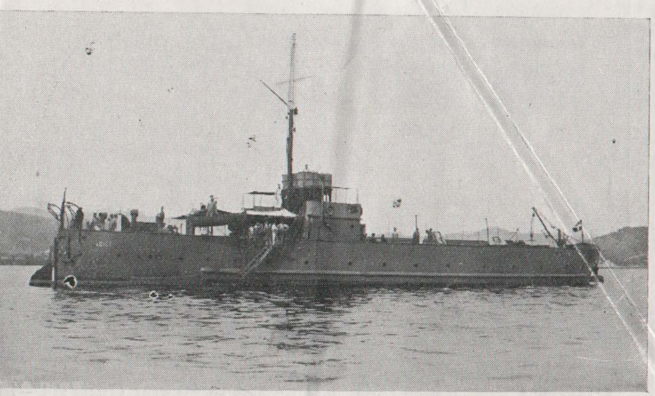


GARIGLIANO 1937.

**GARIGLIANO** (Tirreno, 1934), **SESIA** (Adriatico, 1933). 510 tons. Dimensions: 213¼ × 33 × 7¼ feet. **4** M.G. (Fitted for minelaying). Fiat Diesels. 2 shafts. H.P. 600 = 9·5 kts.

**ARNO, BRENTA** (Odero-Terni, 1929). 635 tons. Dimensions: 138¾ × 26 × 10 feet. Fiat Diesels. H.P.: 350 = 9 kts.

**BORMIDA, MINCIO** (Venice, 1929). 645 tons. Dimensions: 138⅓ × 26¼ × 10 feet. Tosi Diesels. H.P.: 350 = 9 kts.

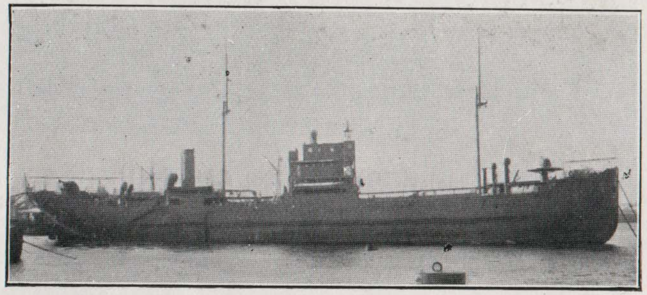


1930 *Photo, Capitan M. Mille.*

**DIGE** (Castellammare, 1928). 780 tons. Dimensions: 154 × 31½ × 7½ feet. **4** M.G. M.A.N. Diesels. 2 shafts. H.P.: 280 = 8 kts.

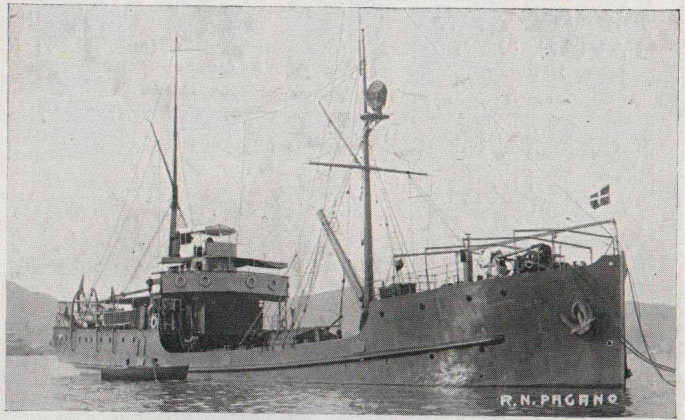
## Water Carriers—*continued*.

**TICINO** (Vulkan, Hamburg, 1924). 1,014 tons. Dimensions: 244 × 36 × 14½ feet. Guns: **2**—3 inch. M.A.N. Deisels. 1 shaft. H.P.: 620 = 9·5 kts.



DALMAZIA. 1929 *Official Photo.*

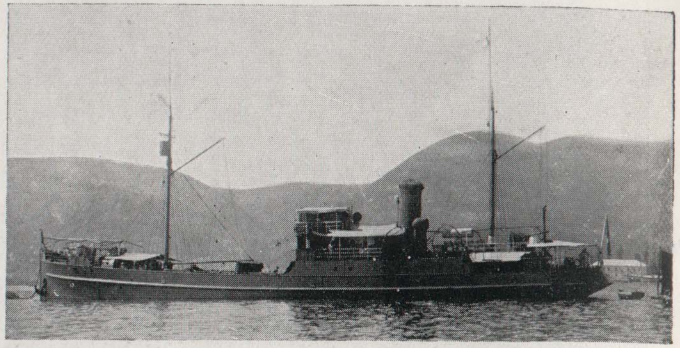
**DALMAZIA** (Fiume, 1922), **ISTRIA** (Fiume, 1923). Displacement: 2,900 tons. Dimensions: 260 × 32½ × 15¼ feet. Guns: **1**—4·7 inch, **1**—3 inch AA. Triple expansion engines. 2 shafts. 2 Thornycroft oil-fired boilers. H.P.: 1,450 = 10 kts. Cargo: 1,800 tons. Both built at Quarnaro Yard.



PAGANO 1936

**PAGANO, VERDE** (Spezia Dockyard, 1921). 1,432 tons. Dimensions: 173⅓ × 30½ × 14 feet. Fiat Diesel engines. B.H.P.: 400 = 7·5 kts. Guns: **1**—4·7 inch, **1**—3 inch AA. Capacity: 950 tons.

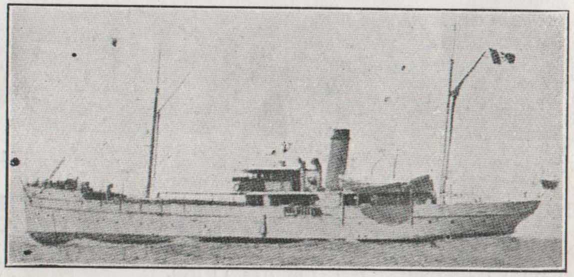
## Water Carriers—*continued*.



1936

**FLEGETONTE** (Riva Trigoso, 1915). Sister ship to Oilers *Cocito* and *Lete*. 1,162 tons. Guns: **3**—3 inch AA. Tosi Diesels. H.P.: 700 = 9 kts. Capacity: 750 tons.

**FRIGIDO** (ex-*Fukuju Maru*). (Osaka, 1912.) (Purchased, 1916.) 300 tons. Dimensions: 116½ × 21½ × 8 feet. **2** M.G. Triple expansion engines. 1 cylindrical boiler. H.P. 221 = 9 kts.

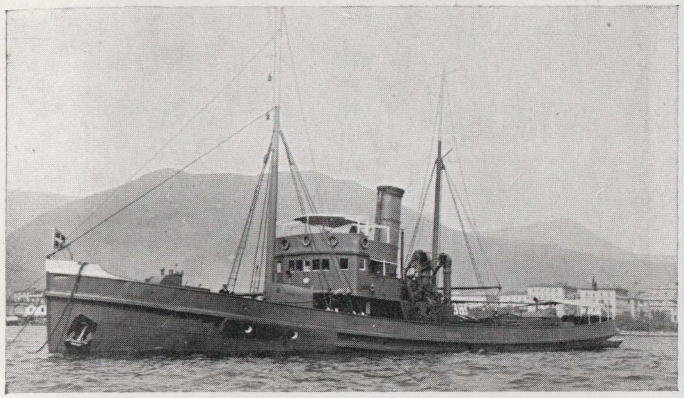


**TEVERE** (Pattison, Naples, 1897). 690 tons. Dimensions: 178⅓ × 26⅓ × 10 feet. Guns: **2**—6 pdr. H.P.: 620 = 10 kts. 1 screw. 1 cylindrical boiler. Coal: 150 tons. Carries 320 tons water.

*Note.*—There are a number of smaller water carriers not worth listing here.

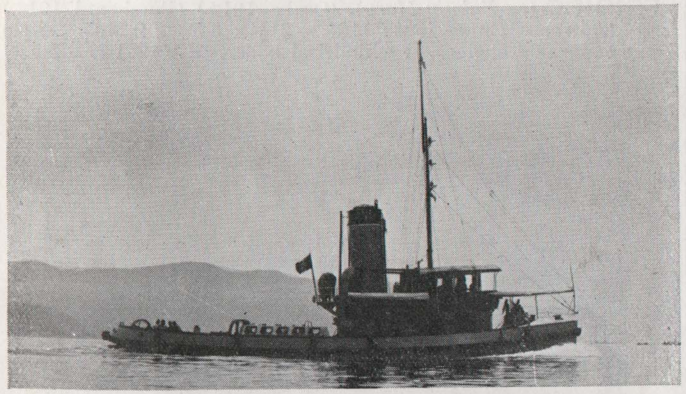
## Tugs. (*Rimorchiatori*)

*Note.*—There are a great many small tugs not worth listing here.



*Added*, 1936.

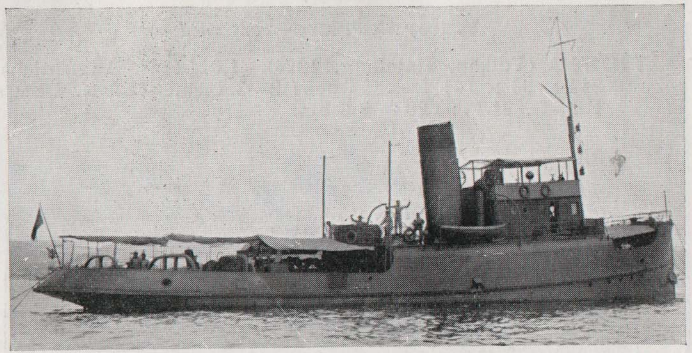
**POLIFEMO** (ex-*Einigkeit*, 1916). Salvage Vessel and Tug. 1,035 tons. H.P.: 1,250 = 12 kts. Thornycroft boiler.



TINO 1936

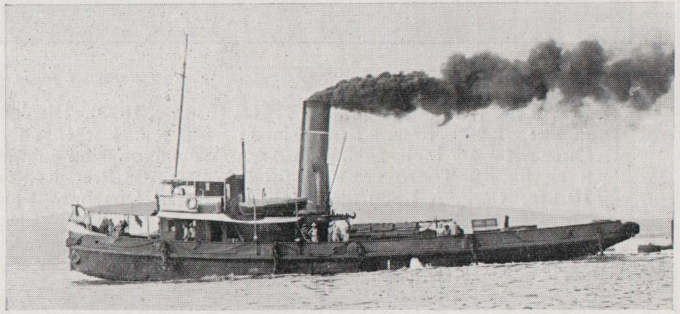
**TINO, PANTELLARIA, PORTO FERRAIO, PORTO TORRES, PORTO CONTE, PORTO ERCOLE, MISENO, PALINURO** (1929-1936). 223 to 226 tons. Guns: 1—3 inch. H.P.: 600 = 11 kts.

## Tugs—*continued.*



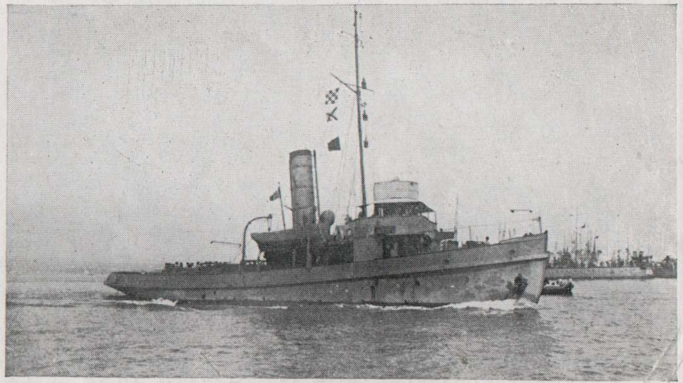
ATLANTE. 1936

**ATLANTE** (1928), **ERCOLE** (1928), **AUSONIA** (1920). 355 tons. Guns: **1**—3 inch. H.P.: 900 = 11 kts.



FAVIGNANA. 1936

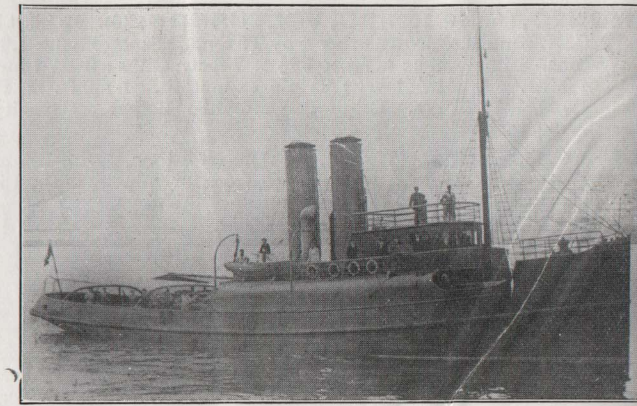
**FAVIGNANA** (1918). 320 tons. Guns: **2**—3 inch. H.P.: 560 = 10 kts.



1936

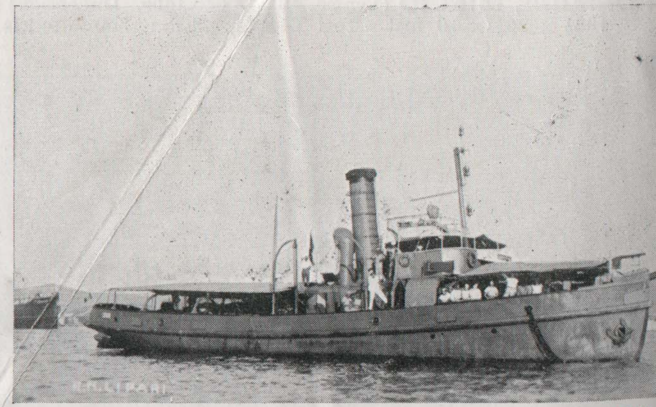
**MONTECRISTO** (Danzig, 1916). 340 tons. H.P.: 500 = 10 kts. Guns: **1**—3 inch.

## Tugs—*continued.*



L. F. MARSIGLI. 1929 *Official Photo*

**LUIGI FERDINANDO MARSIGLI** (ex-*Tremiti*, 1916), **LUNI** (1914), **MARITTIMO** (1915), **EGADI** (1915). 3 tons. Guns: **1**—3 inch. H.P.: 975 = 12 kts.



1936

**LIPARI** (1917). 250 tons. H.P.: 500 = 10 kts. Guns: **1**—3 in

**PORTO EMPEDOCLE** (1914). 330 tons. Guns: 1—3 in H.P. 500 = 11 kts.

# JAPAN.

## Flags.

1 *Standard of H.I.M. the Empress.*—A forked flag with a gold chrysanthemum on a red ground (as sketch for Imperial Standard).

2 *Standard of H.I.H. the Crown Prince.*—As Imperial Standard, but the chrysanthemum is enclosed in a square white border set a little distance within edges of flag.

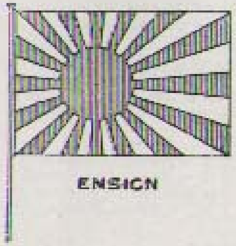
3 *Imperial Princes and Princesses.*—A square white flag, with red border run round edges of flag and gold chrysanthemum in centre.

4 *Duty Flag.*—As sketch for transport, but *white* stripes over *red* ground.

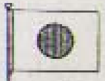
5 *Repair Ship Flag.*—As transport flag, but with red stripes along upper and lower edges of flag, instead of across centre.

6 *Pendant for Men of War.*—Usual narrow triangulated shape, with Rising Sun next to hoist, as in sketch for Commodore.

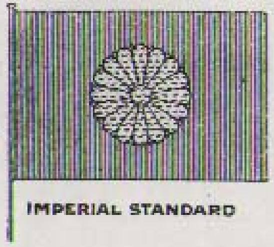
*Minister of Marine:* Admiral M. Yonai.
*Chief of Naval Staff:* Admiral Prince Hiroyasu Fushimi, G.C.V.O.
*Naval Attaché, London:* Capt. H. Yano.
*Assistant Naval Attaché, London:* Commander J. Sato.



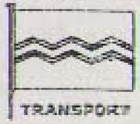
ENSIGN



JACK & MERCANTILE ENSIGN

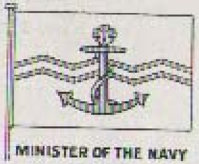


IMPERIAL STANDARD

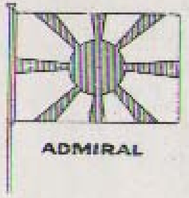


TRANSPORT

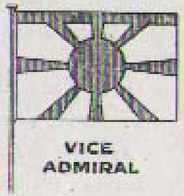
*Red* ▥
*White* ☐
*Gold* ▤
*Blue* ▤



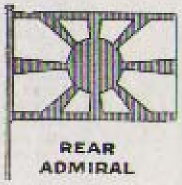
MINISTER OF THE NAVY



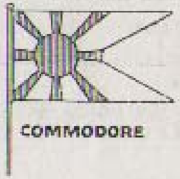
ADMIRAL



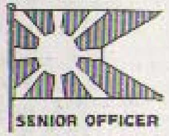
VICE ADMIRAL



REAR ADMIRAL



COMMODORE



SENIOR OFFICER

### Mercantile Marine.

(From "Lloyd's Register," 1937 figures).
2,564 vessels of 4,475,110 gross tonnage.

### Navy Estimates.

(excluding Supplementary Credits).
1936-37, Yen 551,830,000 1937-38, Yen 683,109,564
*Personnel:* *About* 107,000, all ranks.

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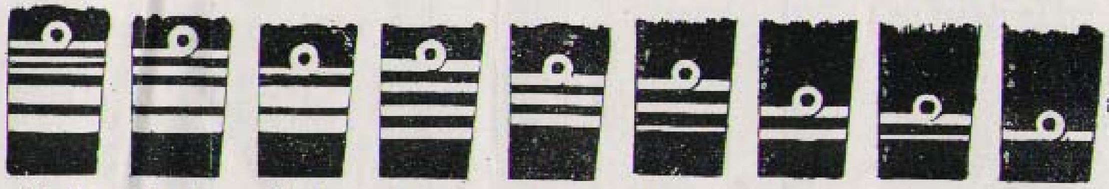
## Personnel and Uniforms.

INSIGNIA OF RANK—EXECUTIVE OFFICERS—SLEEVES



Sho-i Ko-hosei. *Midshipman.*

| Executive Branch: | Tai-sho. | Chu-sho. | Sho-sho. | Tai-sa. | Chu-sa. | Sho-sa. | Tai-i. | Chu-i. | Sho-i | Has a stripe half the width of a Sho-i. |
|---|---|---|---|---|---|---|---|---|---|---|
| Corresponding British: | *Admiral.* | *Vice-Ad.* | *Rear-Ad.* | *Captain.* | *Commander.* | *Lieut. Com.* | *Lieutenant.* | *Sub-Lieut.* | *Acting Sub-Lieut.* | |

| Band between stripes. | (Branches, with but after Executive). | |
|---|---|---|
| Violet | Kikwan (*Engineer*) (with executive rank and curl. Titles as above with the prefix Kikwan). | |
| Red | Gun-i (*Doctor*). | |
| White | Shukei (*Paymaster*). | |
| Brown | Zosen (*Constructor*). | |
| " | Zoki (*Engineer-Constructor*). | with curl, as Executive. |
| Purple-Brown | Zohei (*Gun Constructor*). | |
| Blue | Suiro (*Hydrographer*). | |

The senior officer of any branch on board the ship always carries the affix "*cho.*" Thus: Ho-jitsu-cho (*Gunnery*), Sui-rai-cho (*Torpedo*), Ko-kai-cho (*Navigator*), Gun-i-cho (*Senior Doctor*), Shukei-cho (*Senior Paymaster*).

Undress is a military tunic (dark blue) with the sleeve insignia of rank in black braid only, with curl, and with collar insignia of rank and branch.

CAP.

The cap is the same as the British (but without gold embroidery in the senior ranks).

CAP BADGE.

Small anchor, surrounded by cherry leaves and blossom.

NOMENCLATURE OF JAPANESE WARSHIPS.

The system of nomenclature now being used is thus:—

*Battleships:* Named after Provinces and Mountains.
*Aircraft Carriers:* Named after Mountains and Dragons.
*Cruisers:* Named after Rivers and Mountains.
*Destroyers* (First Class): Meteorological Names in poetic style.
*Destroyers* (Second Class): Named after Trees, Flowers and Fruits.
*Torpedo Boats:* Named after Birds.

*Colour of Ships:* Dark grey usually. Since 1934 submarines of the 18th and 20th Flotillas have been painted black, presumably as an experiment.

# FLEET ORGANISATION, 1937

F – Flagship. L – Leader.

## COMBINED FLEET

**Fleet Flagship**
*Battleship :* Mutu, (F, C-in-C)

## FIRST FLEET

**1st Squadron**
*Battleships :* Mutu (F), Hyuga

**3rd Squadron**
*Battleships :* Haruna (F), Kirisima

**8th Squadron**
*Cruisers :* Yura (F), Kinu, Natori

**1st Destroyer Squadron**
*Cruiser :* Sendai (F)
*9th Flotilla :*
Yugure (L), Ariake, Sigure, Siratuyu
*10th Flotilla ;*
Sazanami (L), Akatuki, Sagiri
*21st Flotilla :*
Nenohi (L), Hatusimo, Wakaba, Hatuharu.

**1st Submarine Squadron**
*Cruiser :* Isuzu (F)
*7th Sub. Flotilla :* I 2 (L), I 1, I 3
*8th Sub. Flotilla :* I 5 (L), I 4, I 6
*28th Sub. Flotilla :*
I 60 (L), I 59, I 63

**1st Aircraft Carrier Squadron**
*Aircraft Carriers :* Hosho (F), Ryujo
*30th Flotilla ;*
Mutuki (L), Uduki, Yayoi, Kisaragi

## SECOND FLEET

**4th Squadron**
*Cruisers :* Takao (F, C-in-C), Maya

**5th Squadron**
*Cruisers :* Asigara (F), Nati, Haguro

**2nd Destroyer Squadron**
*Cruiser ;* Zintu (F)
*7th Flotilla :*
Oboro (L), Osio, Akebono
*8th Flotilla :*
Amagiri (L), Asagiri, Yugiri
*19th Flotilla :*
Ayanami (L), Shikanami, Uranami, Isonami

**2nd Submarine Squadron**
*Depot Ship :* Zingei (F)
*12th Sub. Flotilla :* I 68 (L), I 69, I 70
*29th Sub. Flotilla :* I 64 (L), I 261, I 62
*30th Sub. Flotilla :* I 65 (L), I 66, I 67

**2nd Aircraft Carrier Squadron**
*Aircraft Carrier ;* Kaga
*22nd Flotilla ;*
Nagatuki (L), Minatuki, Satuki, Fumituki

## DETACHED SQUADRON

**12th Squadron**
*Minelayer :* Okinosima (F)
*Aircraft Tender :* Kamoi
*28th Flotilla :*
Yunagi (L), Asanagi

**Attached Ships**
*Supply Ship :* Mamiya
*Oilers :* Naruto, Turumi

## THIRD FLEET

**10th Squadron**
*Coast Defence Ship :* Idumo (F, C-in-C)
*Cruisers :* Tenryu, Tatuta

**11th Squadron**
*Gunboat :* Ataka (F)
*River Gunboats :* Toba, Seta, Katada, Hira, Hodu, Atami, Futami, Kotaka.
*Destroyers :* Kuri, Tuga, Hasu.

**5th Destroyer Squadron**
*Cruiser :* Yubari (F)
*13th Flotilla :* Wakatake (L), Kuretake, Sanae
*16th Flotilla :* Huyo (L), Karukaya, Asagao

**Attached Ship**
*Gunboat :* Saga

## TRAINING SQUADRON

*Coast Defence Ships ;* Yakumo (F), Iwate

# NAVAL STATIONS

Letters following names of ships and squadrons indicate attachment to establishments as follows :—

T – Torpedo School
G – Gunnery School
C – Communications School
A – Artificers' School
F – Flying School
B – Naval Barracks
N – Navigation School
S – Submarine School
NC – Naval College

## YOKOSUKA

**Guard Squadron**
*Cruiser* G.T.C.A.F.N. : Kiso (F)
*3rd Flotilla,* G.T.C.A.F.N. ;
Yukaze (L), Siokaze, Simakaze, Nadakaze

**Full Commission**
*Battleship,* G.T.C.A.F.N. : Yamasiro
*Coast Defence Ship,* G.T.C.A.F.N. : Kasuga
*Minelayer,* G.T.C.A.F.N. : Itukusima (F)
*Surveying Ships :* Kosyu, Komahasi
*4th Flotilla :*
Hakaze (L), Akikaze, Tatikaze, Hokaze
*6th Flotilla ;*
Hibiki (L), Ikaduki, Inaduma
*9th Sub. Flotilla,* G.T.C.A.F.N. :
I 23 (L), I 24
*1st Minesweeping Flotilla,* G.T.C.A.F.N. :
Nos. 6 (L), 1, 2, 3, 4, 5
*Oilers :*
Sunosaki, Siretoko

**Reserve**
*Battleships;* Hiei
*Cruisers :* Atago, Tyokai, Naka
*Aircraft Carrier :* Akagi
*5th Flotilla :*
Matukaze (L), Asakaze, Harukaze, Hatakaze
*Destroyer ;* Sawakaze
*4th Sub. Flotilla :* Ro. 54, Ro. 55, Ro. 56
*6th Sub. Flotilla :* Ro. 58 (L), Ro. 57, Ro. 59
*18th Sub. Flotilla :* I 54 (L), I 53, I 55
*19th Sub. Flotilla ;* I 58 (L), I 57, I 56
*Ex-battleship :* Hiei
*Oiler ;* Siriya

## KURE

**Guard Squadron**
*Depot Ship,* S : Tyogei (F)
*11th Flotilla,* NC, S :
Hatuyuki, Sirayuki, Hubuki

**Full Commission**
*Cruiser,* NC, S : Oi
*Submarines,* S. : I 71 (L), Ro. 33
*Oilers :* Ondo, Erimo
*Surveying Ships :* Katsuriki, Yodo
*Salvage Ship :* Asahi
*Collier ;* Muroto

**Reserve**
*Battleships :*
Ise, Huso
*Cruisers :*
Mogami, Mikuma, Kako, Hurutaka, Hirado, Yahagi, Aoba, Kinugasa, Kuma
*Depot Ships :* Karasaki, Taigei
*Minelayer :* Sirataka
*Coast Defence Ship :*
Aduma
*12th Flotilla ;*
Sirakumo (L), Murakumo, Usugumo
*15th Flotilla ;*
Hudi (L), Susuki, Tuta
*Destroyers :*
Yugao, Yakaze
*11th Sub. Flotilla :* Ro. 53, Ro. 51
*13th Sub. Flotilla :* I 22 (L), I 21
*Submarines :* I 51, 52, 55
*11th Minesweeping Flotilla :*
Nos. 16 (L), 13, 14, 15, 17, 18
*Oiler :* Iro

## SASEHO

**Guard Squadron**
*Cruiser ;*
Kitakami (F)
*23rd Flotilla ;*
Kikutuki (L), Motiduki, Mikaduki, Yuduki
*27th Sub. Flotilla ;*
Ro. 67 (L), Ro. 66, Ro. 65

**Full Commission**
*Ex-battleship,* B. : Sikisima
*Oiler :* Hayatomo
*Collier :* Nozima

**Reserve**
*Battleship :* Kongo
*Cruisers :* Nagara, Myoko, Abukuma
*Seaplane Carrier :* Notoro
*Minelayers :* Tokiwa (F), Yaeyama
*24th Flotilla ;*
Yanagi, Kasi, Momo, Hinoki
*25th Flotilla ;*
Kaya, Nasi, Take
*27th Flotilla :*
Sumire, Hisui, Tade, Yomogi
*29th Flotilla :*
Hayate, Oite
*24th Sub. Flotilla ;* Ro. 68 (L), Ro. 63
*28th Sub. Flotilla :* I 63 (L), I 60, I 59
*21st T.B. Flotilla :*
Manaduru (L), Hatukari, Tidori, Tomoduru
*25th Sub. Flotilla :*
Ro. 30, Ro. 31, Ro. 32

**Reserve**—*continued.*
*26th Sub. Flotilla :*
Ro. 60 (L), Ro. 61, Ro. 62
*29th Sub. Flotilla :* I 61 (L), I 62, I 64
*Oiler :* Sata

# MINOR NAVAL STATIONS

## MAIDURA

E – Attached to Engineering College

**Full Commission**
*Cruiser,* E. : Tama
*Submarine,* E. : Ro. 64
*1st T.B. Flotilla :*
Otori, Hiyodori, Hayabusa, Kasasagi

## BAKO

**Full Commission**
*5th Flotilla :* Asakaze (L), Hata, Harukaze, Matuk.

## OMINATI

**Full Commission**
*Icebreaker :* Otomari
*1st Flotilla :*
Namikaze (L), Kamikaze, Nokaze, Numakaze

## CHINKAI

**Full Commission**
*20th Flotilla :* Niri (L), Kaki, Asi

## RYOJUN (PORT ARTHUR)

**Full Commission**
*14th Flotilla :* Aoi (L), Kiku, Hagi

## Principal Naval Guns.

| Notation | Calibre. | Length in calibres. | Model. | Weight of Gun. | Weight of A.P. shot. | Maximum Initial Velocity. | Maximum penetration firing A.P. capped at K.C. | | Danger space against average ship, at | | | Service rate of Fire. Rounds per minute. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 5000 yards. | 3000 yards. | 10,000 yards. | 5000 yards. | 3000 yards. | |
| | inches. | | | tons. | lbs. | F.S. | inches. | inches. | | | | |
| HEAVY | 16 | 45 | K.M. | 105 | ... | 2600 | ... | ... | ... | ... | ... | ... |
| | 14 | 45 | V | 82 | 1400 | ... | ... | ... | ... | ... | ... | ... |
| MEDIUM | 8 | 50 | | | | | | | | | | |
| | 8 | 45 | A | 17½ | 250 | 2740 | 7 | 10 | 110 | 425 | 600 | 1·2 |
| | 8 | 40 | A | 15½ | 250 | 2580 | 5½ | 7½ | 100 | 400 | 580 | 1·2 |
| | 6 | 45 | ('04) | 8½ | 100 | 3000 | 4½ | 6½ | 75 | 250 | 475 | ... |
| | 6 | 50 | V | 8 | 100 | 3000 | 4½ | 6½ | 75 | 250 | 475 | 6 |
| | 6 | 40 | A | 6¼ | 100 | 2500 | 3 | 4½ | 65 | 210 | 435 | 7 |
| | 6 | 40 | A | 6 | 100 | 2220 | 2½ | 4 | 35 | 150 | 360 | 8 |
| | 5·5 | 50 | ... | 6¼ | 82 | 2725 | ... | ... | ... | ... | ... | 12 |
| | 4·7 | 45 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | 4·7 | 40 | A | 2 | 45 | 2150 | ... | 2¼ | ... | ... | ... | 8 |
| | 4·7 | 32 | A | 1⅔ | 36 | 1938 | ... | ... | ... | ... | ... | 8·6 |
| LIGHT | 3 | ... | ... | ... | 14 | ... | ... | ... | ... | ... | ... | ... |
| | 3 | 40 | ... | 2 | 12 | 2200 | ... | ... | ... | ... | ... | ... |
| AA | 3 | 40 | ... | ... | 13 | ... | ... | ... | ... | ... | ... | ... |

In the Model column A = Armstrong ; V = Vickers ; K.M. = Kure Arsenal and Muroran Steel Works.

There are also mounted in recent ships : 6·1 inch (*Mogami* class) 6 inch, 50 cal. K.M. ; 5 inch, 50 cal. AA., 1927 K.M. ; 4·7 inch, 50 cal. AA. ; and various marks of 4 inch and 3 inch.

**(All details tabulated above are unofficial.)**

# SUMMARY OF NAVAL FORCES.

| | *Building* | *Built* |
|---|---|---|
| 9 *Battleships.* | | |
| Nagato *class* | — | 2 |
| Hyuga ,, | — | 2 |
| Huso ,, | — | 2 |
| Kongo ,, | — | 3* |

* Plus Hiei, re-arming.

| | *Building* | *Built* |
|---|---|---|
| 6 *Aircraft Carriers.* | | |
| Soryu *class* | 1 | 1 |
| Ryuzyo | — | 1 |
| Kaga | — | 1 |
| Akagi | — | 1 |
| Hosyo | — | 1 |
| 12 *First Class Cruisers.* | | |
| Atago *class* | — | 4 |
| Nati ,, | — | 4 |
| Kako ,, | — | 2 |
| Kinugasa ,, | — | 2 |
| 25 *Second Class Cruisers.* | | |
| Mogami *class* | 2 | 4 |
| Yubari | — | 1 |
| Zintu *class* | — | 3 |
| Natori ,, | — | 6 |
| Kuma ,, | — | 5 |
| Tenryu ,, | — | 2 |
| Hirado ,, | — | 2 |
| 5 *Coast Defence Ships.* | | |
| Kasuga | — | 1 |
| Idumo *class* | — | 2 |
| Yakumo | — | 1 |
| Aduma | — | 1 |
| 113 *Destroyers.* | | |
| Asasio *class* | 10 | — |
| Sigure ,, | — | 10 |
| Hatuharu ,, | — | 6 |
| Hubuki ,, | — | 23 |
| Mutuki ,, | — | 12 |
| Kamikaze ,, | — | 9 |
| Akikaze ,, | — | 13 |
| Wakatake ,, | — | 7 |
| Kata ,, | — | 19 |
| Momo ,, | — | 4 |

[illegible]?
Сегодня
в ср. 90
новых 126

| | *Building* | *Built* |
|---|---|---|
| 20 *Torpedo Boats.* | | |
| Otori *class* | 8 | 8 |
| Tidori ,, | — | 4 |
| 6 *Submarine Chasers.* | 3 | 3 |
| 12 *Minesweepers.* | | |
| Nos. 13—18 | — | 6 |
| 1—6 | — | 6 |
| 60 + 2 *Submarines.* | | |
| I. 71—75 | 1 | 4 |
| 68—70 | — | 3 |
| 65—67 | — | 3 |
| 53—64 | — | 12 |
| 51, 52 | — | 2 |
| 21—24 | — | 4 |
| 6—8 | 1 | 2 |
| 1—5 | — | 5 |
| Ro. 60—68 | — | 9 |
| 51—59 | — | 8 |
| 33, 34 | — | 2 |
| 30—32 | — | 3 |
| 26—28 | — | 3 |

Сегодня
сейчас
в войне
102
новых
125

| | *Building* | *Built* |
|---|---|---|
| 5 *Seaplane Carriers.* | | |
| Titose *class* | 2 | 1 |
| Notoro, Kamoi | — | 2 |
| 11 *Minelayers.* | | |
| Okinosima | — | 1 |
| Natusima *class* | — | 3 |
| Yaeyama | — | 1 |
| Itukusima | — | 1 |
| Siratakа | — | 1 |
| Kamome *class* | — | 2 |
| Katuriki | — | 1 |
| Tokiwa | — | 1 |
| 9 *Gunboats.* | | |
| Atami *class* | — | 2 |
| Hira ,, | — | 4 |
| Ataka | — | 1 |
| Saga | — | 1 |
| Toba | — | 1 |
| 5 *Depot Ships.* | — | 5 |
| 2 *Surveying Vessels.* | — | 2 |
| 12 *Oilers.* | 1 | 11 |
| 5 *Other Auxiliaries.* | 1 | 4 |

**Japanese Alphabet.** (Read name from right to left in syllables made by consonants (down) and vowels (across), in names painted on sides of smaller ships.

| | A | E | I | O | U | YA | YO | YU | WA |
|---|---|---|---|---|---|---|---|---|---|
| | ア | エ | イ | オ | ウ | ／ | ／ | ／ | ／ |
| B | バ | ベ | ビ | ボ | ブ | ビャ | ビョ | ビュ | ／ |
| D | ダ | デ | ヂ | ド | ヅ | ヂャ | ヂョ | ヂュ | ／ |
| G | ガ | ゲ | ギ | ゴ | グ | ギャ | ギョ | ギュ | グヮ |
| H | ハ | ヘ | ヒ | ホ | フ | ヒャ | ヒョ | ヒュ | ／ |
| K | カ | ケ | キ | コ | ク | キャ | キョ | キュ | クヮ |
| M | マ | メ | ミ | モ | ム | ミャ | ミョ | ミュ | ／ |
| N | ナ | ネ | ニ | ノ | ヌ | ニャ | ニョ | ニュ | ／ |
| P | パ | ペ | ピ | ポ | プ | ピャ | ピョ | ピュ | ／ |
| R | ラ | レ | リ | ロ | ル | リャ | リョ | リュ | ／ |
| S | サ | セ | シ | ソ | ス | シャ | ショ | シュ | ／ |
| T | タ | テ | チ | ト | ツ | チャ | チョ | チュ | ／ |
| W | ワ | ヱ | ヰ | ヲ | ／ | ／ | ／ | ／ | ／ |
| Y | ヤ | ／ | ／ | ヨ | ユ | ／ | ／ | ／ | ／ |
| Z | ザ | ゼ | ジ | ゾ | ズ | ジャ | ジョ | ジュ | ／ |

N = ン

---

**Second Fleet Replenishment Law, 1933.** (First Law completed at end of 1937.)

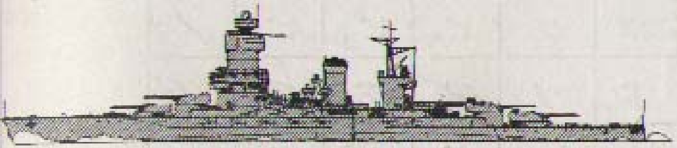
- 2 cruisers of 8,500 tons
- 2 aircraft carriers of 10,000 tons
- 14 destroyers
- 16 torpedo boats
- 4 submarines
- 6 submarine chasers
- 1 submarine depot ship
- 1 repair ship
- 2 oilers
- 3 aircraft tenders

The Second Replenishment Law also includes the strengthening of the Fleet Air Arm by a further 8 squadrons between 1934–37, giving a total of 39 squadrons in 1937.

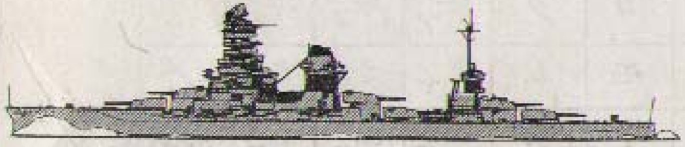
**Third Replenishment Law, 1937.**

4 battleships, 1 or 2 aircraft carriers, and a number of cruisers, destroyers and submarines. To be completed at end of 1942.

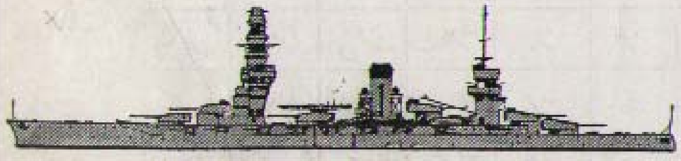
## JAPAN—Silhouettes (Battleships and Aircraft Carriers)



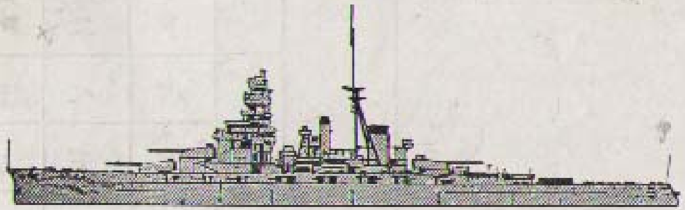
Mutu. Nagato.



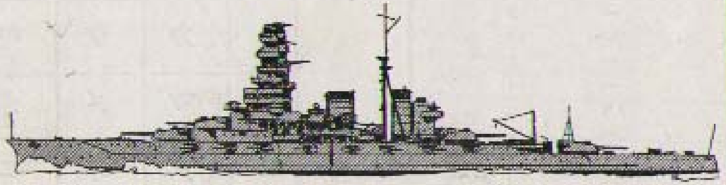
Hyuga. Ise.



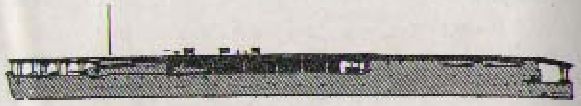
Huso. Yamasiro.



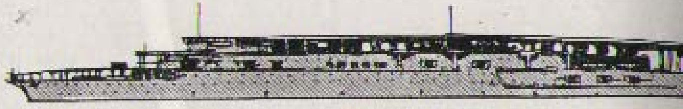
Hiei.



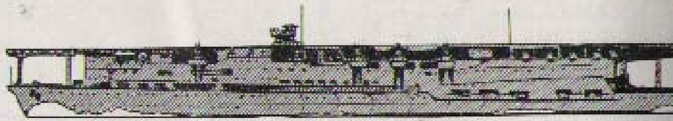
Haruna. Kirisima. Kongo.



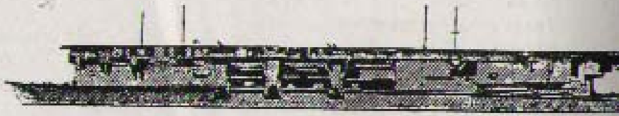
Hosyo.



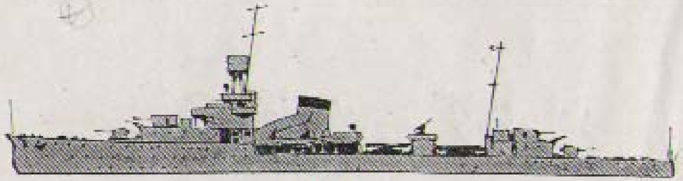
Akagi.



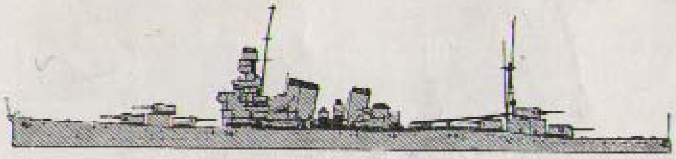
Kaga.



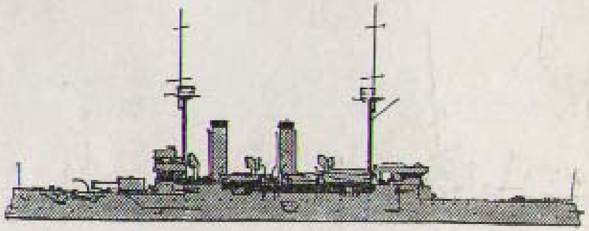
Ryuzyo.



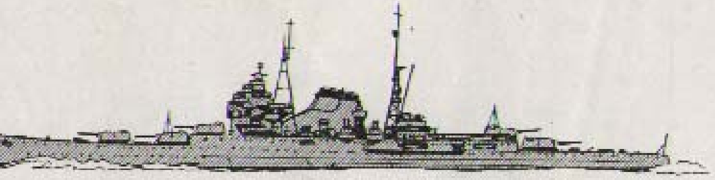
Yubari.



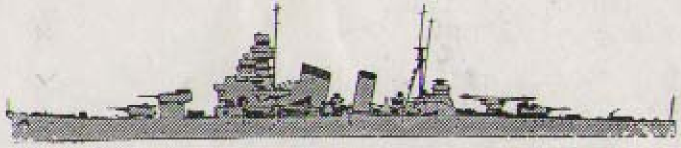
Hurutaka.
Kako.



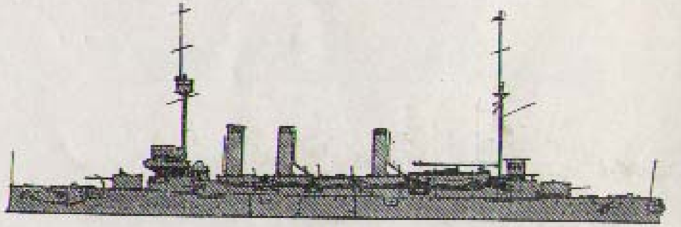
Tokiwa.



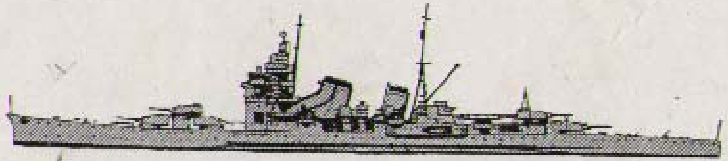
Mogami *class*.



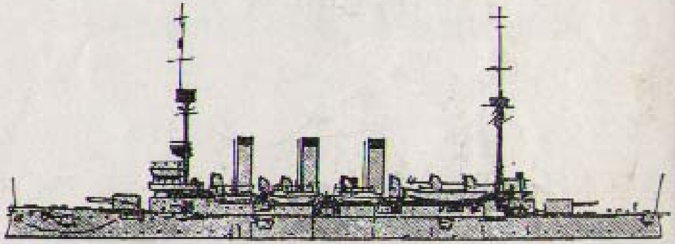
Kinugasa.
Aoba.



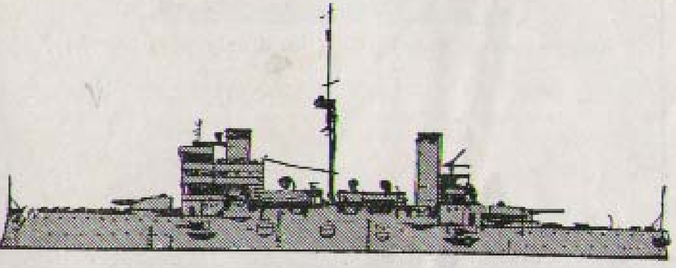
Aduma.



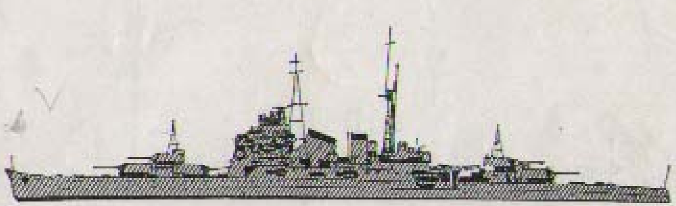
Nati. Asigara.
Myoko. Haguro.



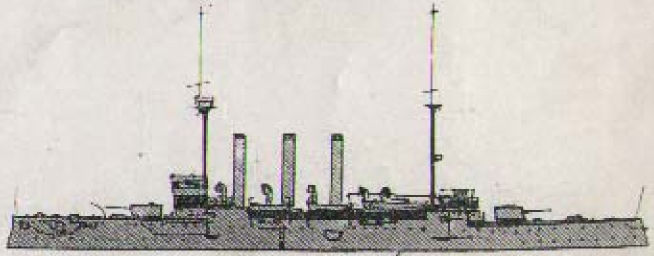
Yakumo.



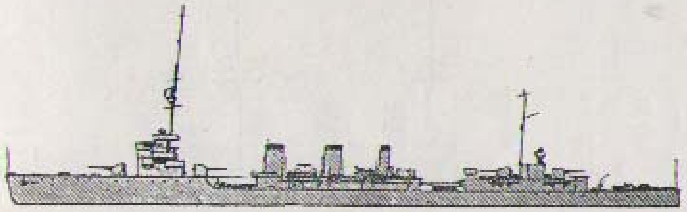
Kasuga.



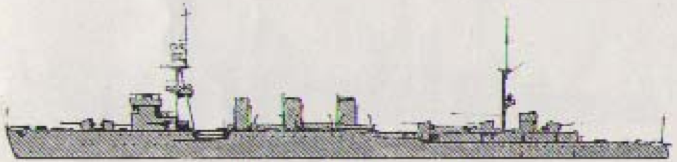
Atago. Maya.
Tyokai. Takao.



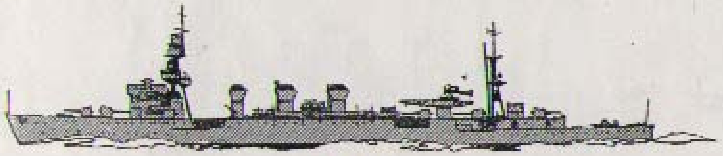
Idumo.
Iwate.



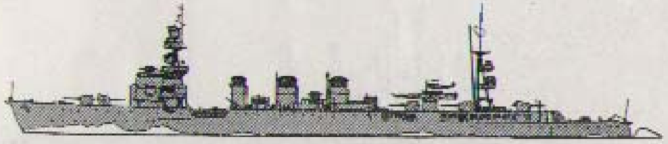
TATUTA.
TENRYU. (Now fitted with tripod foremast)



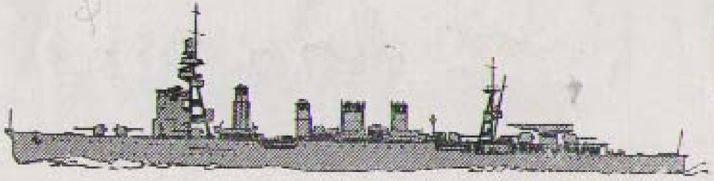
KISO. TAMA. OI.
KITAKAMI.



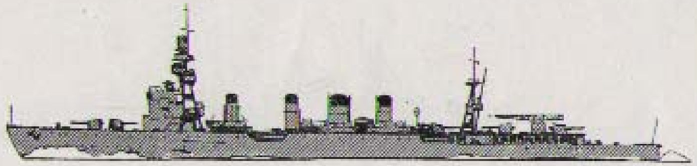
KUMA



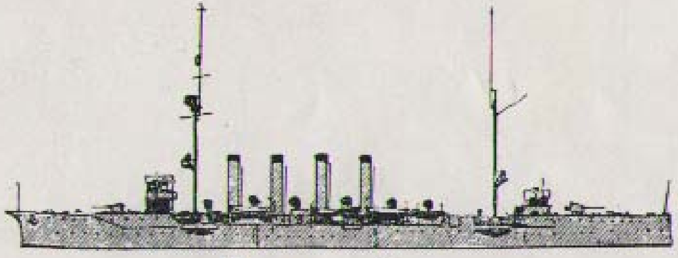
NATORI *class*.
(Some have spoon bows).



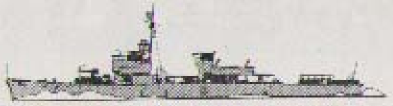
NAKA.



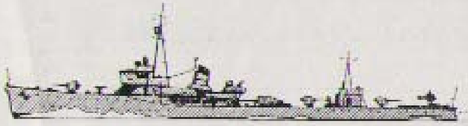
SENDAI



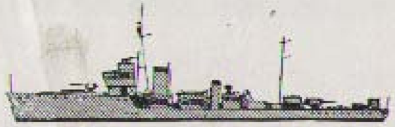
HIRADO. YAHAGI.



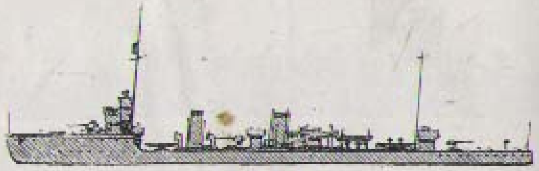
S.C. 3 (1 and 2 similar).



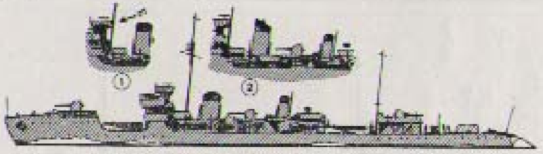
TIDORI and OTORI *classes*.



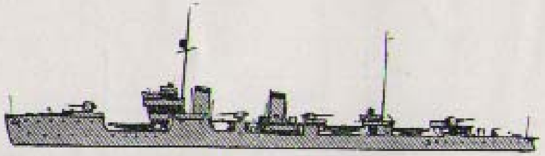
MINESWEEPERS NOS. 1—6. (No. 6 only with tripod.)



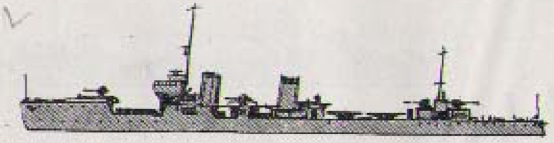
MOMO *class*



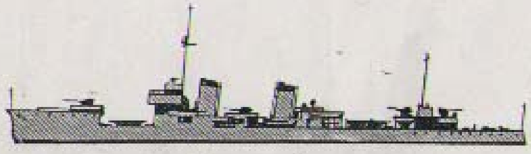
WAKATAKE *class.*
(Inset 1, KAYA *class.* Inset 2, HASU.)



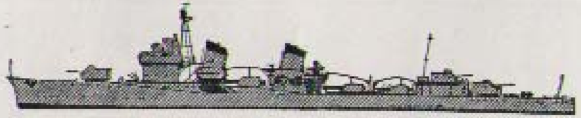
AKIKAZE *class.*



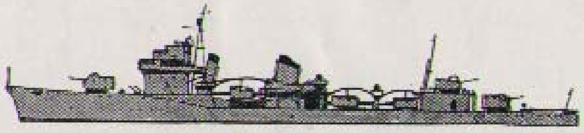
KAMIKAZE *class.*
(NAMIKAZE, NOKAZE and NUMAKAZE similar.)



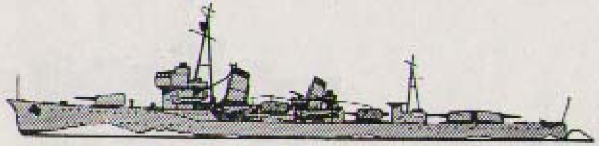
MUTUKI *class.*
(Note bow and amidships t.t.)



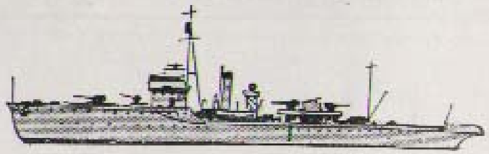
HUBUKI *class*
(Some have no shields to tubes; others a more slender first funnel.)



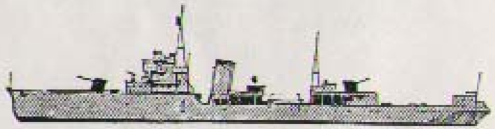
HIBIKI *class*



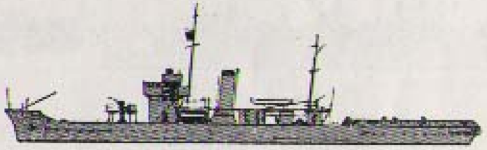
SIGURE *class.*
(HATUHARU *class* similar.)



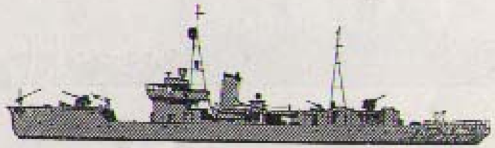
SIRATAKA.



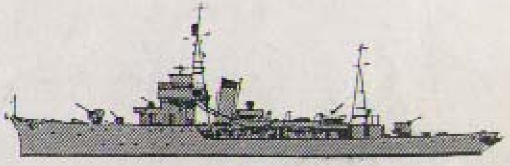
YAEYAMA.



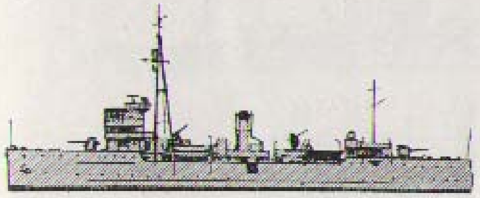
KAMOME. TUBAME.

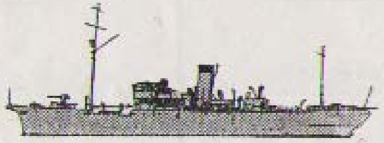


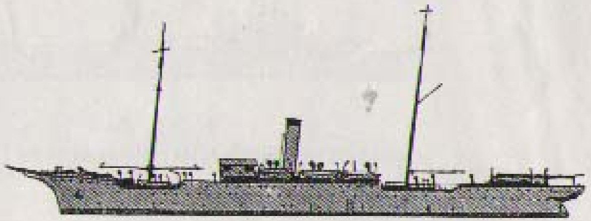
NATUSIMA *class.*

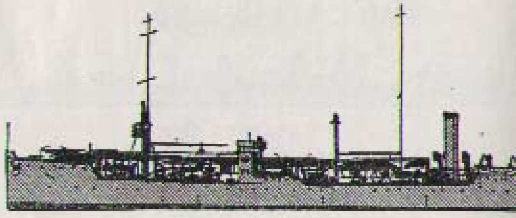


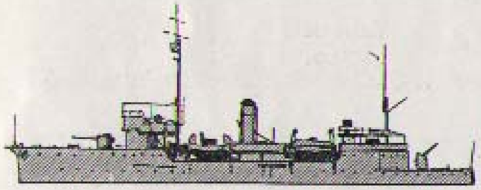
MINESWEEPERS 13 to 16.

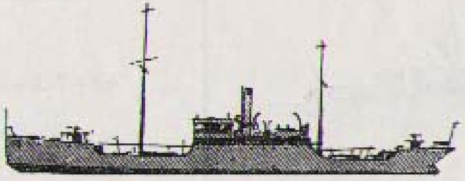

Ataka.

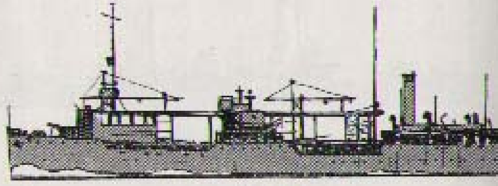

Komahasi.

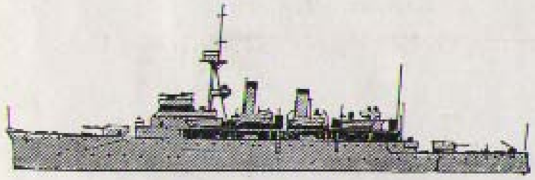

Karasaki.

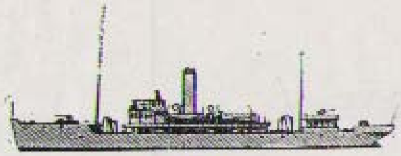

Notoro.

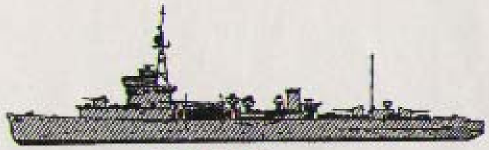

Saga.

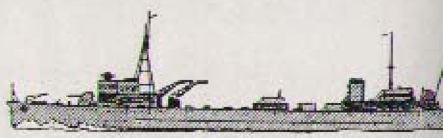

Kosyu.

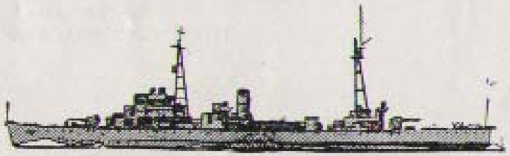

Kamoi.

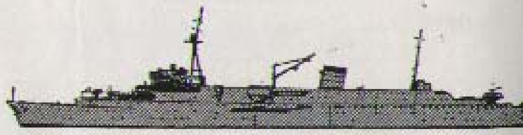

Zingei. Tyogei.

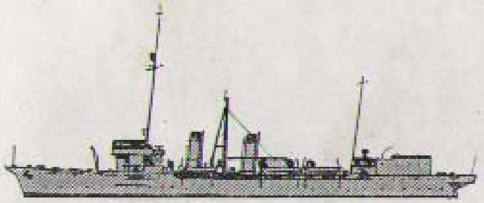

Katuriki.

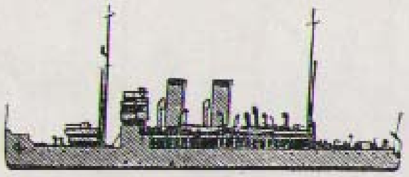

Itukusima.

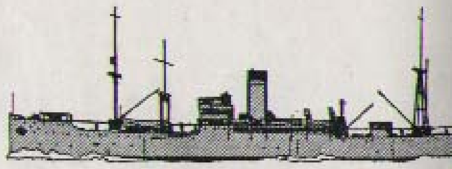

Turugizaki. Takasaki.

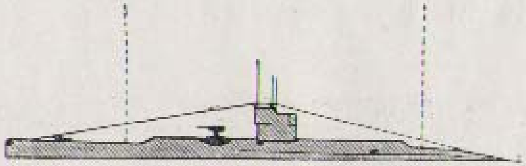

Okinosima.


Taigei.

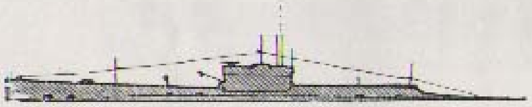

Yodo.


Otomari.

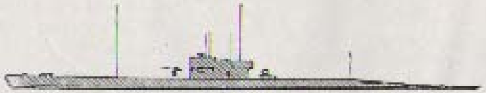

Mamiya.



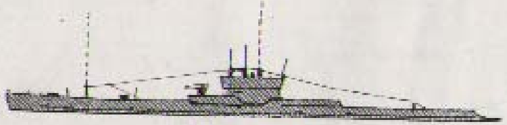
Ro. 51—56 (5).



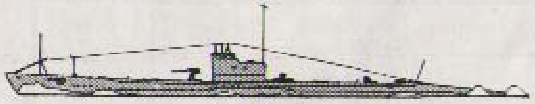
Ro. 57. 58. 59.



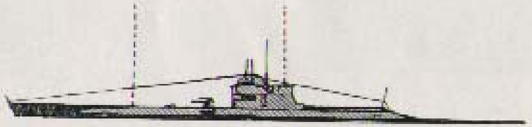
Ro. 30—32.



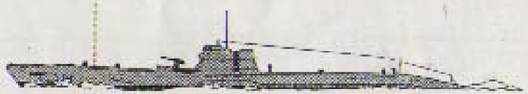
Ro. 60—68



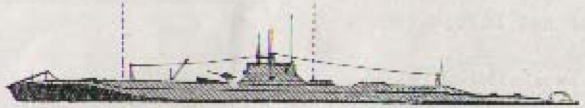
Ro. 33—34.



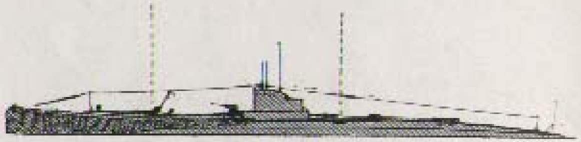
Ro. 26. 27. 28.



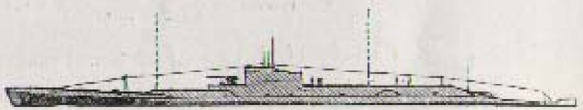
I. 65—67. KD5
(I. 68—75 similar) KD6A, KD6B



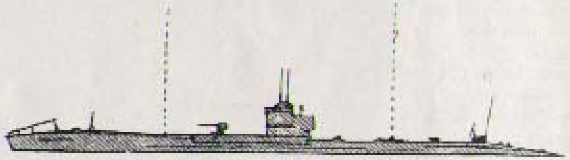
I. 53—64. KD3A
(Deck flush from bow to C.T.)



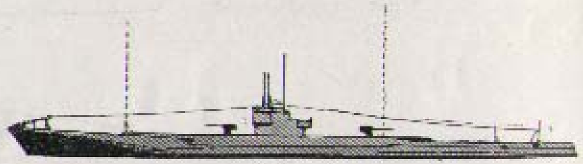
I. 51. KD1



I. 52. KD2



I. 21—24. B1



I. 1—4. J1

## New Construction.

+2) Yamato 8 ал. 45000т 262,2 × 42,4 × [illegible]
+1) Musashi 8 9-406
26 уз

[illegible]
72800 -
9-450
6-152
16-47
16-25

Four new battleships are projected, two of which were to have been begun in 1937. It is believed they will be ships of 35,000 tons, armed with 16 inch guns. Up to the end of Nov., 1937, there was no news of any keels having been laid.

1) 14.10.44 в зал. Лейте
2) 7.4.45 у Кюсю

(NAGATO CLASS—2 SHIPS).

[illegible]

**NAGATO** (Nov. 9th, 1919); † **MUTU** (May 31st, 1920). VIII-43 в бухте [illegible]

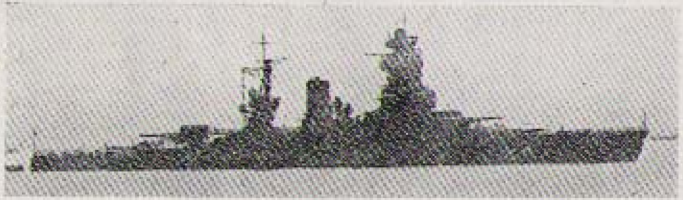
18.7.45 повреждён в Йокосуке

*Standard* displacement, 32,720 tons.

Complement, {74 officers / 1,258 men} = 1,332.

Length, {p.p., 660¾ feet. / o.a., 700 feet*} Beam, 95 feet. Draught, 30 feet *max.*

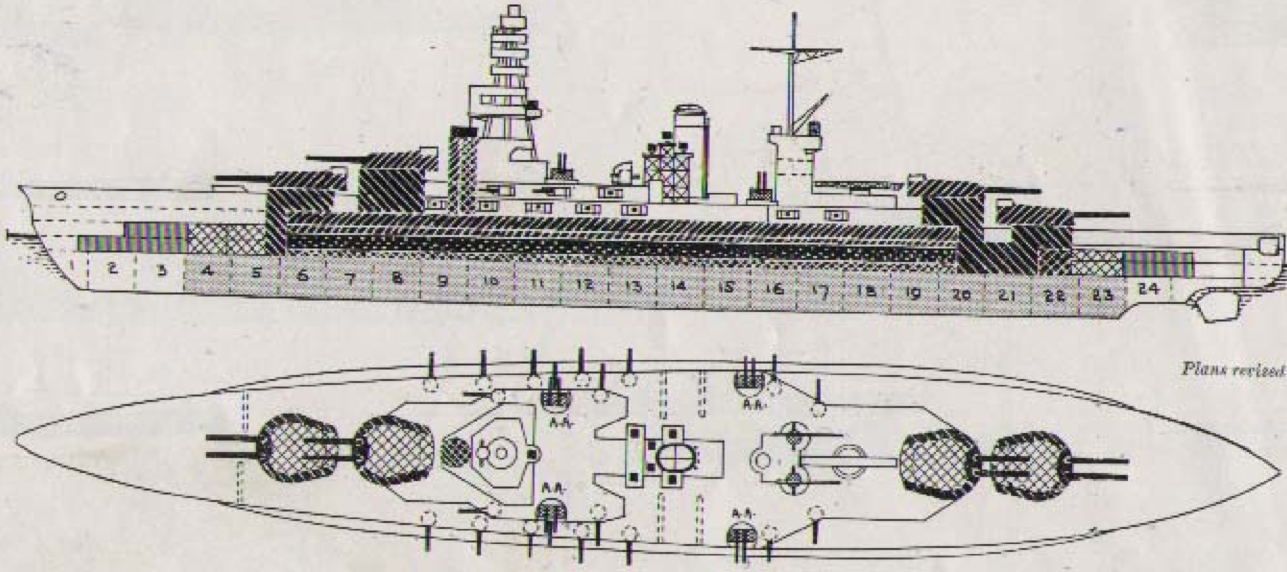
* Approximate.



NAGATO. 1937

Guns (Japanese):
8—16 inch, 45 cal.
20—5.5 inch, 50 cal.
8—5 inch AA.
7 M.G.
Torpedo tubes (21 inch):
6 *submerged.*
Searchlights: 8.
Aircraft: 3.

Armour: (*unofficial*)
13" or 12" Belt ........
8"—4" Ends ............
3½" Deck ............
7" deck above magazines, boilers and engine rooms.
14" Turrets ............
" Battery ............
12" Conning tower ......
(Special anti-torpedo protection.)



*Plans revised 1936*

Machinery: Geared turbines. 4 shafts. Boilers: 21 Kanpon. Designed H.P.: 80,000 = 23 kts. Oil fuel: about 4,500 tons.

*Notes.*—Both built at Naval Yards as shown in table. Extensively reconstructed at same yards in 1934-36, being given bulges and triple bottoms for protection against torpedo attack, new machinery, aircraft, increased deck protection and increased elevaton of 16-inch guns. Trial speed after reconstruction and reboilering reported as 26 kts.

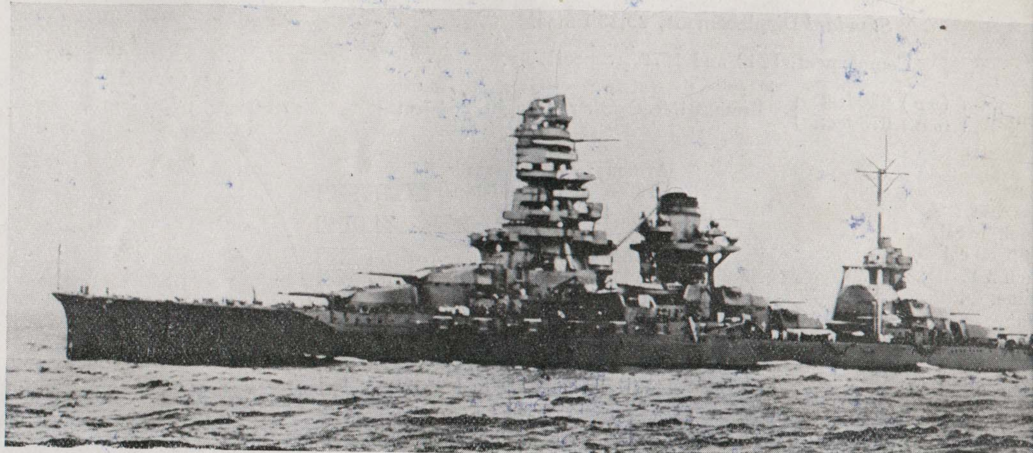
| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* | *Boilers* |
|---|---|---|---|---|---|---|
| *Nagato* | Kure | Kure | 28 Aug., 1917 | 25 Nov., 1920 | 84,000 = 23·5 | Kanpon |
| *Mutu* | Yokosuka | Yokosuka | 1 June, 1918 | 24 Oct., 1921 | = 23·4 | |

**ISE** (Nov. 12, 1916), 28.7.45 повреждён в Куре, притоплен

† **HYUGA** (Jan. 27, 1917). 28.7.45 в Куре авиацией

*Standard* Displacement, 29,990 tons. Complement, 1,360.

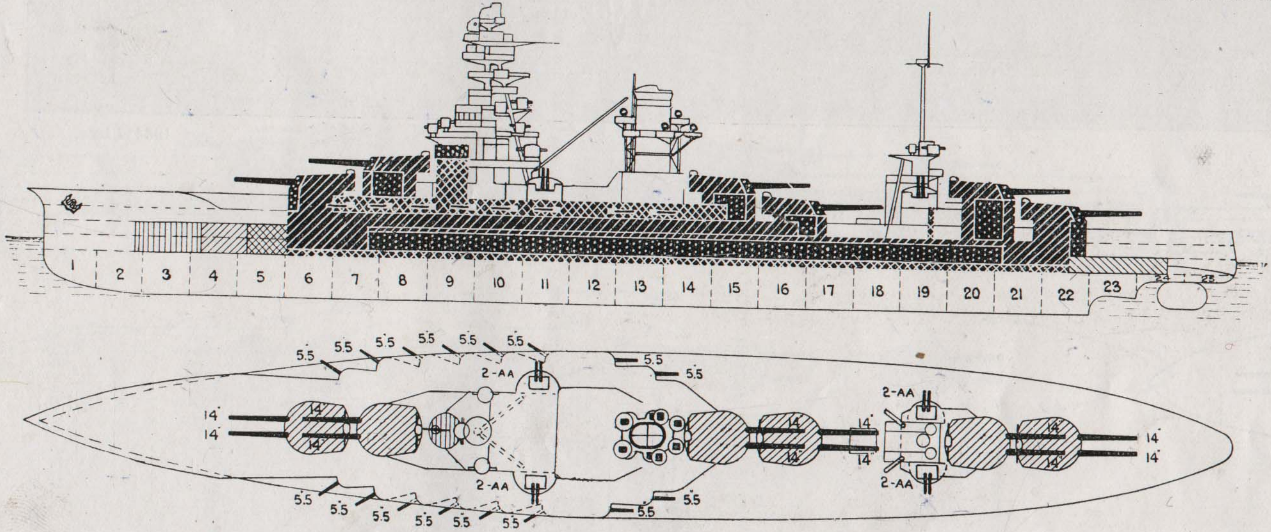
Length *(p.p)*. 640 feet. Beam, 94 feet. *Max.* draught, 28⅔ feet. Length *(o.a.)*, 683 feet.



Ise. (Hyuga similar).

Guns (Japanese):
  12—14 inch, 45 cal.
  18—5·5 inch, 50 cal.
  8—5 inch, AA.
  7—M.G.
Torpedo tubes (21 inch):
  4 *submerged.*
Aircraft: 3.

Armour (Japanese):
12″—8″ Belts .... ▣ ▨
5″—3″ Belt (Ends) ▦ ▨ ▥ ▧
2½″—1¼″ Decks ..
12″—8″ Turrets .. ▣ ▨
6″ Battery...... ▩
12″—6″ C.T. .... ▣ ▩



Machinery: Brown-Curtis turbines in *Ise*; Parsons turbines in *Hyuga*. 4 shafts. Boilers: 24 Kanpon.* Designed H.P. 45,000 = 23 kts. Oil fuel: 4,500 tons.

*General Note concerning boilers of these and certain other ships: "Kanpon" is a Japanese Admiralty type of W.T. boiler, resembling Yarrow type, with Japanese modifications.

| *Name* | *Built by* | *Machinery* | *Laid down* | *Completed* | *Trials. H.P. = kts.* |
|---|---|---|---|---|---|
| *Ise* | Kawasaki Co. | Kawasaki Co. | 10.5.15 | 15.12.17 | = 23·3. |
| *Hyuga* | Mitubisi Co. | Mitubisi Co. | 6.5.15 | 30.4.18 | |

+**HUSO** (March 28th, 1914), [illegible] 25.10.44 [illegible]

+**YAMASIRO** (Nov. 3rd, 1915).

*Standard* Displacement, 29,330 tons.

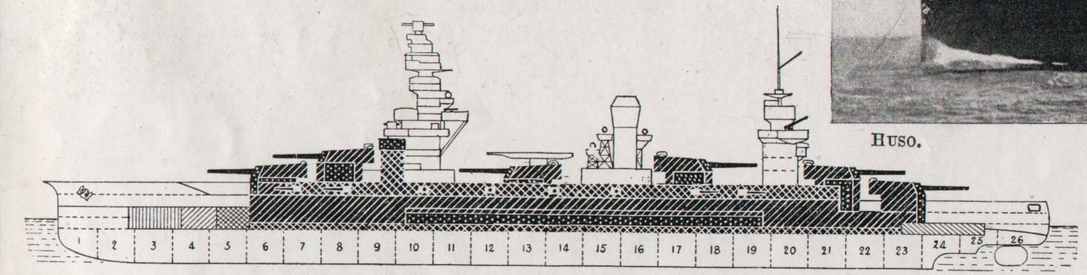
Complement, 1243 and 1272, respectively.

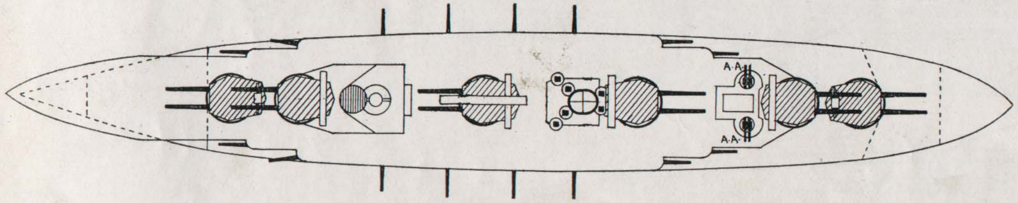
Length { (*p.p.*) 630 feet. (*o.a.*) 673 feet. } Beam, 94 feet. *Max.* draught, 28½ feet.

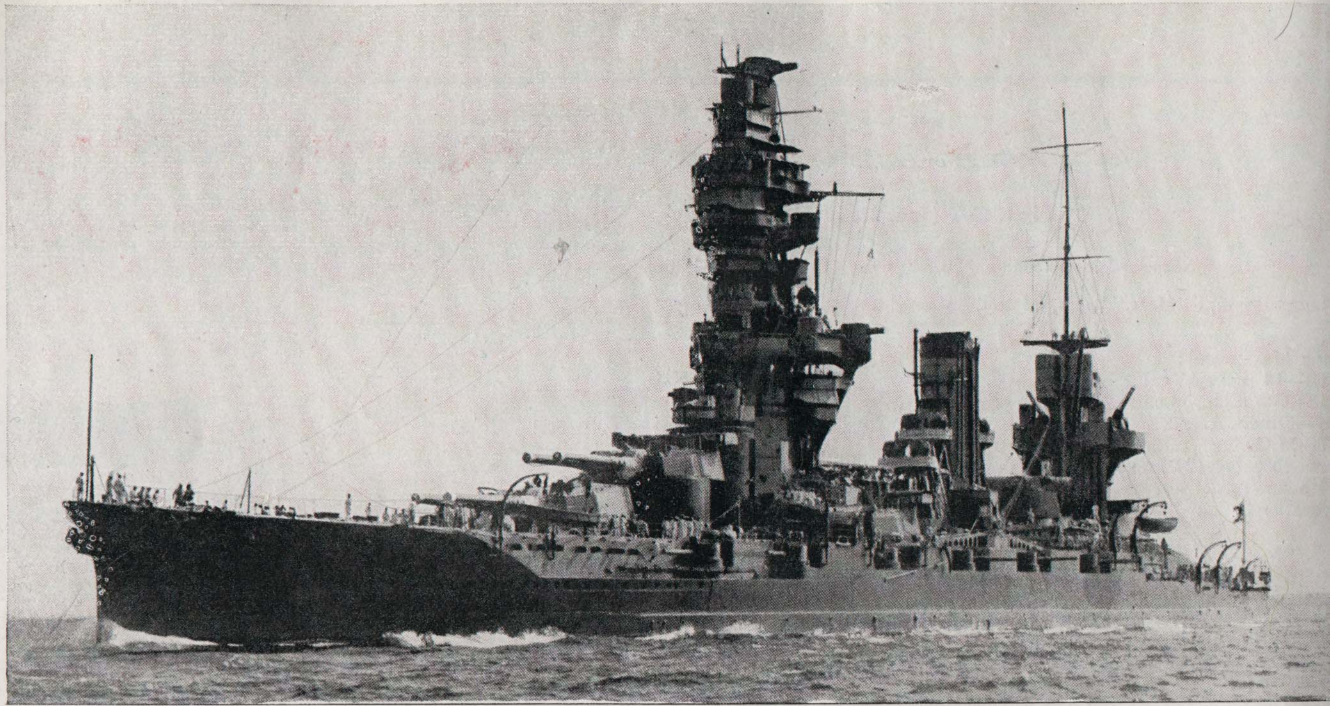
uns (Japanese):
12—14 inch, 45 cal.
16—6 inch, 50 cal.
8—5 inch AA.
26 machine.
4 landing.
orpedo tubes (21 inch):
2 *submerged*.

ircraft:
1, with catapult—on turret amidships in *Huso* and on q.d. in *Yamasiro*.

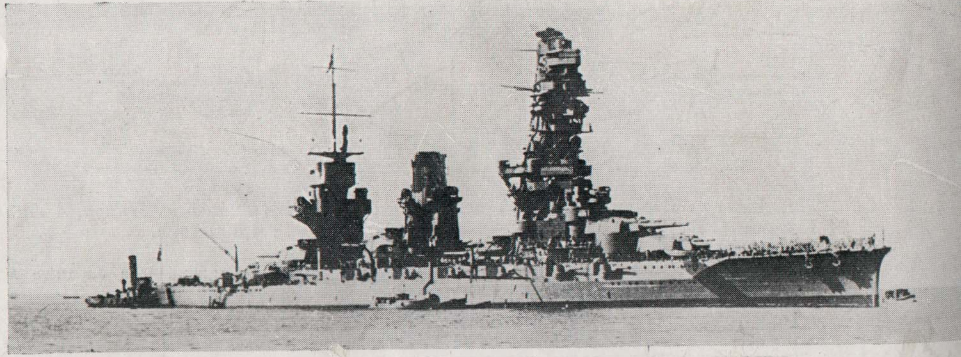
Armour:
12″–8″ Belt (amidships) ▪ ▨
5″, 4½″, 4″ Belt (bow) ▦ ▨ ▥ ▥
4″ Belt (stern) .................. ▧
8″ Upper belt .................. ▨
6″ Battery .................. ▦
12″–8″ Barbettes ............ } ▪
12″—8″ Gunhouses ......... } ▨
12″ & 6″ C.T. ......... ▪ ▦
(Bulkheads 12″ to 4″)
2″ & 1¼″ Decks ...........
—″ Roofs { Gunhouses } ▨
{ C.T. ......... } ▥







**Huso.** 1934 *Photo.*



**Yamasiro.** 1936 *Official.*

Machinery: Brown-Curtis turbines. 4 shafts. Boilers: Kanpon. Designed H.P. 40,000 = 22·5 kts. Fuel: 5000 tons oil.

*General Notes.*—Both ships were thoroughly reconstructed 1932-33 and altered in profile. The replacing of the 24 Miyabara boilers by (?) 8 Kanpon has enabled the forward boiler room to be converted to other uses, and there is now only one funnel fitted with an anti-flare top. The base of the foremast has been enlarged and fitted with wings, and the tripod mainmast is replaced by a tower base on which AA guns are mounted. No. 3 turret in *Huso* only now bears forward, and has a catapult on the crown, while additional searchlights have been grouped around the funnel. A large amount of additional armour and anti-torpedo structure has been worked into the ships, but details are lacking. Formerly 14 inch guns were reported as having an elevation of 25°, but this has probably now been increased.

| *Name.* | *Builder.* | *Machinery.* | *Laid down* | *Completed* | *Trials.* H.P. = kts. | *Turbine* | *Boilers* | *Best recent speed* |
|---|---|---|---|---|---|---|---|---|
| *Huso* | Kure | Kawasaki | 11 3.12 | 8.11.15 | 46,500 = 23. | Curtis | Kanpon | |
| *Yamasiro* | Yokosuka | Kawasaki | 20.11.13 | 31. 3.17 | ... ... | Curtis | Kanpon | |

(KONGO CLASS—4 SHIPS.)

~~Конго поврежден Декабрь месяц 41г.~~
~~4 [illegible]~~

~~Потоплен в 8 [illegible]~~
~~4 [illegible]~~
~~6-7 Декабря~~
~~41г.~~

**+KONGO** (May 18th, 1912). 21.11.44 у Формозы ПЛ

**+HIEI** (Nov. 21, 1912). 13.11.42 у о. Гвадалканар.

**HARUNA** 28.7.45 поврежден в Куре потоплен. (Dec. 14th, 1913), **+KIRISIMA** 15.11.42 (Dec. 1st, 1913).

*Standard* displacement, 29,330 tons. Complement, 980.

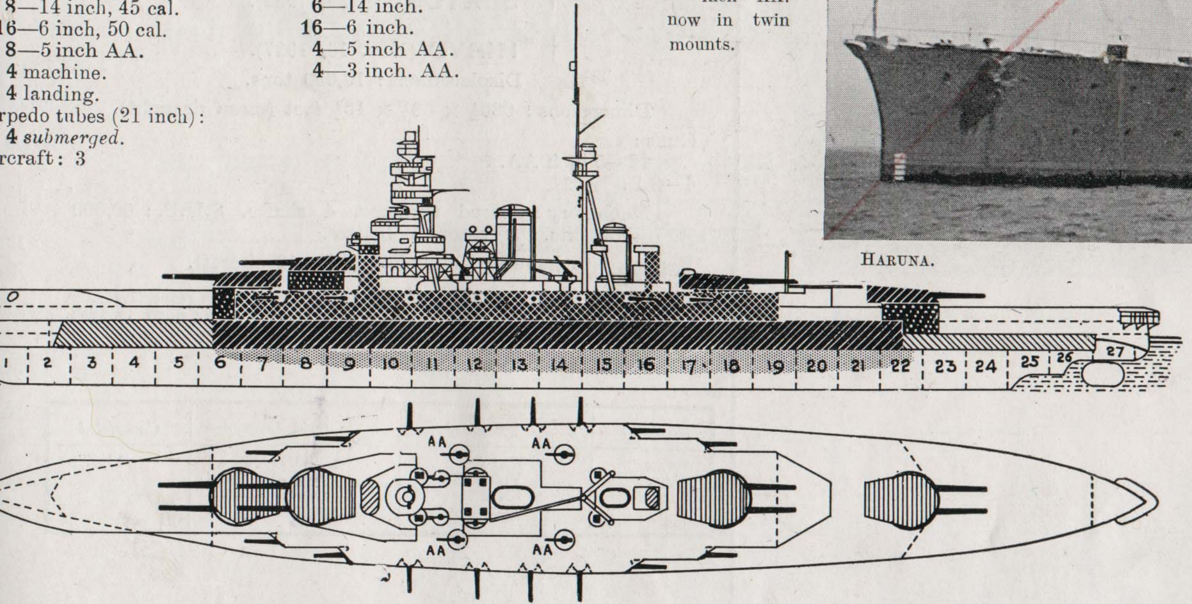
ngth {(p.p.) 653½ feet. (o.a.) 704 ,,

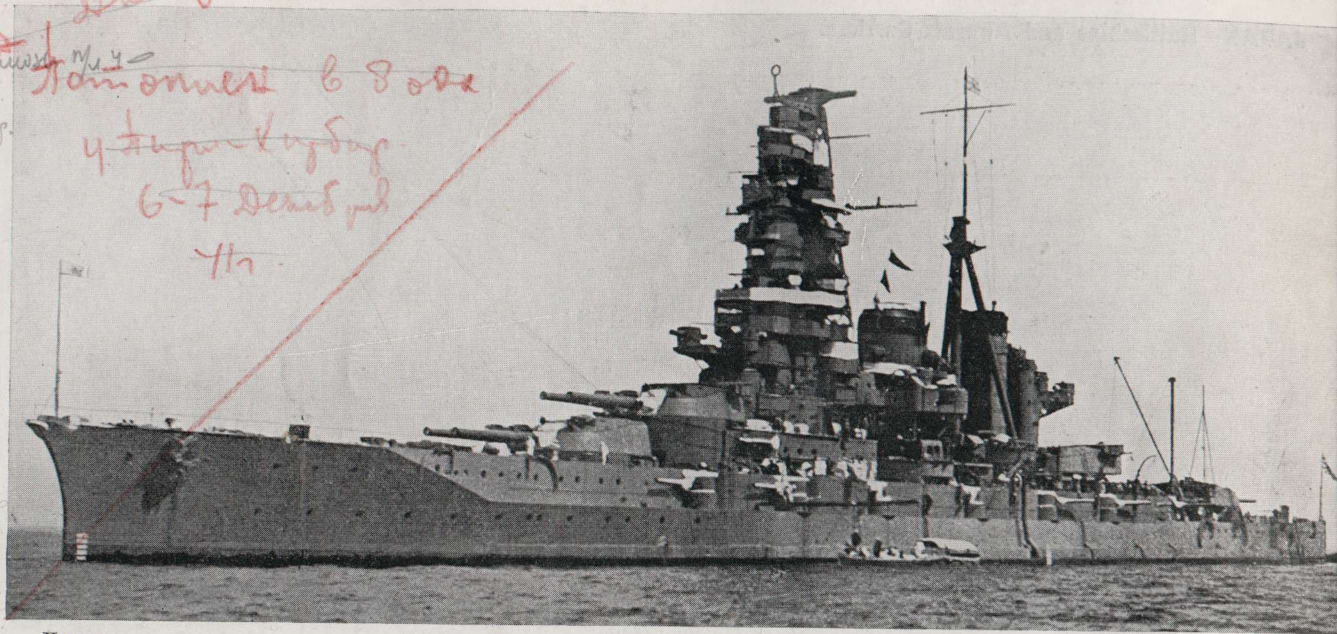
| | | |
|---|---|---|
| *Kirisima* | Beam, 95 feet. | *Max.* draught. 27½ feet |
| *Kongo* | ,, 92 ,, | *Mean, 20¾ feet.* |
| *Hiei* | ,, 92 ,, | |
| *Haruna* | ,, 95 ,, | |

ns (*see Notes*):
8—14 inch, 45 cal.
16—6 inch, 50 cal.
8—5 inch AA.
4 machine.
4 landing.
rpedo tubes (21 inch):
4 *submerged.*
rcraft: 3

*Hiei*:
6—14 inch.
16—6 inch.
4—5 inch AA.
4—3 inch. AA.

*Note to Plan.*— inch AA. now in twin mounts.





HARUNA.

(KONGO now has funnels of equal height),
(*Additional photos on following page.*)

1934 (*added* 1935).

Armour (Krupp):

Vertical.
8″ Belt (amidships) ...... ■
3″ Belt (ends) ........... ▨
6″ Upper belt .........} ▩
6″ Battery ...........}
9″, 6″, 5″ Bulkheads (*f*)
8″, 6″ Bulkheads (*aft.*)
10″— ″ Barbettes ...... ■
9″— ″ Gunhouses ...... ▨
...″ C.T. base ...... ▩
10″ C.T. ( ″ hood) ...... ■
″ Fore comm. tube ...
6″ Torpedo con. tower ▩
″ Tube (C.T. tower) ...

Armour (H.T.?):

Decks.
″ Forecastle ...........
2¾″ Main.....................
″ Middle ...................
″ Lower ...................

Special Protection H.T.
Torpedo Protection Bulkheads.

During reconstruction 4″ was added to deck protection, raising displacement by 3,000 tons.

Machinery: Parsons 4-shaft (in *Haruna* only, Curtis 4-shaft) turbines. Designed H.P.: 64,000=26 kts. Boilers: See *Notes*. Fuel: About 4,500 tons oil.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* F P. | *Turbine* | *Boilers* | *Re-fit* |
|---|---|---|---|---|---|---|---|---|
| *Hiei* | Yokosuka | Mitubisi | 4,11,11 | 4.8.'14 | | Parsons | Kanpon | |
| *Kongo* | Vickers | Vickers | 17.1.11 | 16.8.'13 | | Parsons | Kanpon | 1936 |
| *Haruna* | Kawasaki | Kawasaki | 16.3.12 | 19.4.'15 | | Curtis | Kanpon | 1926 |
| *Kirisima* | Mitubisi | Mitubisi | 17.3.12 | | | Parsons | Kanpon | 1925 |

*General Notes.*—*Kongo* 1910–11 Programme, others 1911–12 Programme. Designed by Sir George Thurston. For *Haruna* 30% of material was imported and erected in Japan. 3 planes added to equipment, 1927. All 3 refitted 1926–30, and bulges added, reducing speed by over a knot. Funnels altered on conversion to oil fuel only. *Kongo* completely rebuilt, 1935–36, being given additional protection against torpedo and aircraft attack. *Hiei*, de-militarised for Training purposes, is now being re-armed.

**These Notes are not from any official data.**

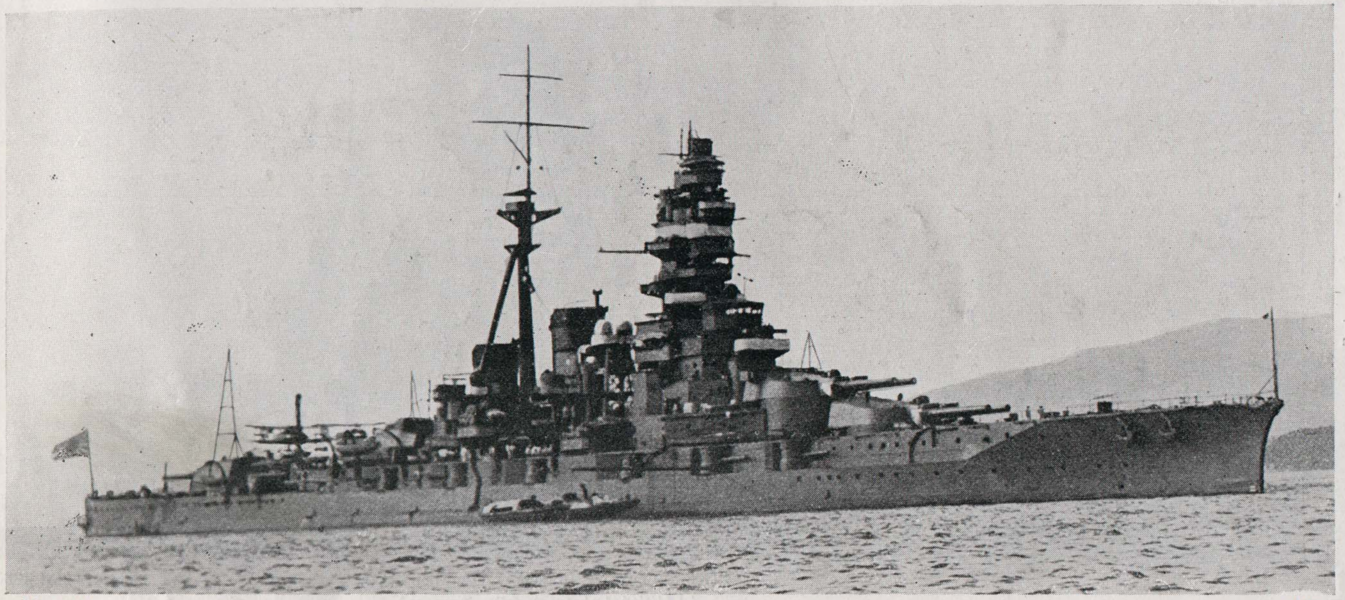
*Gunnery Notes.*—In *Kongo* guns are Vickers models; but in other three ships all calibres are of Japanese manufacture. *Kongo* has combined Vickers (hydraulic) and Janney-Williams (electric) manœuvring systems for her barbettes; there is also a small auxiliary hydraulic installation, generally used for cleaning purposes, which can be used in emergency for working the 14-inch guns.

*Armour Notes.*—Main belt is 12′ 5″ deep, 8″ thick, and extends between Barbettes Nos. 1 and 4. Upper belt between Barbettes Nos. 1 and 3, 6″ thick, and carried up to forecastle deck. Bulkheads: Main belt is closed by diagonal bulkheads of 8″—6″ aft and by a 6″—5″ bulkhead forward. Upper belt closed by 6″ bulkhead aft and 9″—6″ bulkhead forward. There is also a narrow 3 inch strip of armour, 2 feet 6 inch deep under whole length of main belt; this is not shown on plans.

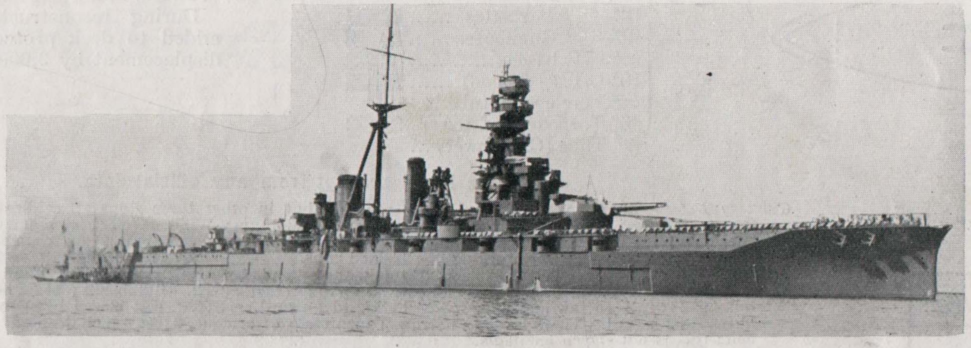
*Anti-Torpedo Protection Notes.*—Internal sub-division by longitudinal and cross bulkheads. Extra protection given by armour to all magazine spaces. Port and starboard engine rooms are divided by an unpierced longitudinal bulkhead along keel-line. It is said contract for *Kongo* stipulated she should float with 50 feet of her side blown away, should not heel more than 11°, and *automatically* regain the vertical in a specified length of time, though at an increased draught.

*Torpedo Notes.*—Tubes are twin submerged type, at varying levels, some being only 6 feet below waterline. Except in the case of the tubes in wake of No. 3 Barbette, Starboard Tube is before Port Tube. *Kongo* has combined hydraulic and electrically-operated tubes. In *Haruna*, tubes are Armstrong 21-inch side-loading, hydraulically operated.

*Engineering Notes.*—In *Kongo*, and *Kirisima* Parsons turbines have H.P. rotors on outboard shafts and I.P. on inner shafts, with astern turbines aft and in same casing. Reconstruction included new Kanpon boilers.



KIRISIMA. 1935.



HIEI (As a Training Ship) (Being re-armed). 1933 *Photo.*

Additional illustrations of *Kongo* class
(described on preceding page).

## Aircraft Carriers.

(SORYU Class—2 or 3 SHIPS)

*Completing.*

† **SORYU** (Dec. 23, 1935). } 4.6.42 Мидуэй

† **HIRYU** (Nov. 16, 1937). }

Displacement : 10,050 tons.

Dimensions : 688½ × 68⅓ × 16½ feet (*mean* draught).

Guns :
12—5 inch AA.
4—S.L.

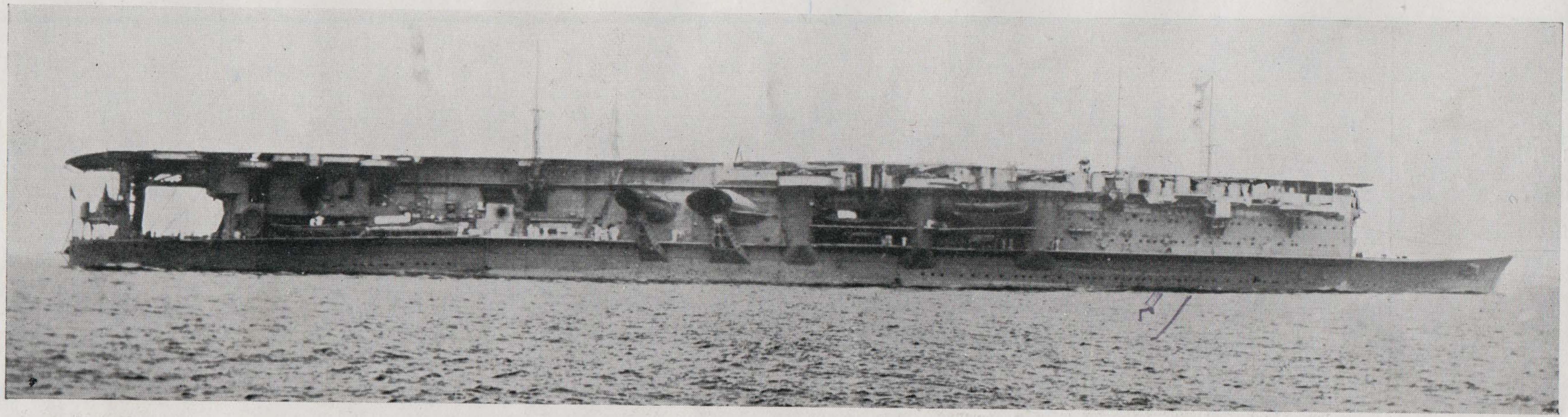
Machinery : Geared turbines. 4 shafts. S.H.P. : 60,000 = 30 kts. 8 Kanpon boilers.

Reported to have accommodation for 40 aircraft.

*Note.*—These names mean *Blue Dragon* and *Flying Dragon* respectively. A third ship, *Koryu,* is reported to be projected for laying down in 1938.

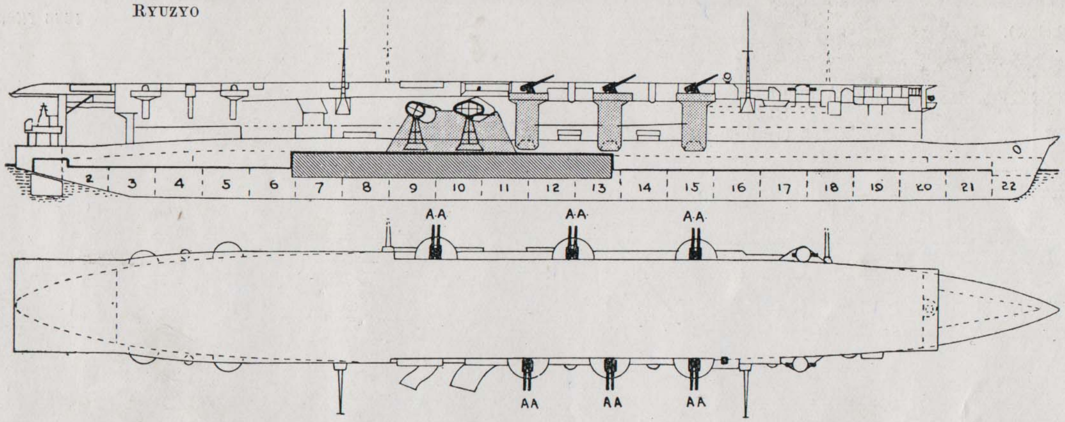
+ Shoh
Haiyata
+ Hitaneb
+ Taiho
+ Zuiho
Ryuho
+ Shinano
+ Unryu
Amagi
Katsuga
Kasagi
Ibuki
+ Ryuj
+ Chiy
+ Chok

| *Name* | *Builder* | *Laid down* | *Completed* |
|---|---|---|---|
| *Soryu* | Kure | 20/11/34 | —/12/37 |
| *Hiryu* | Yokosuka | 8/7/36 | |
| *Koryu* | Kure ? | —/—/38 | |



RYUZYO

1933 *Photo, Official.*



**RYUZYO** (April 2, 1931).

Displacement: 7,100 tons. Complement: 600.

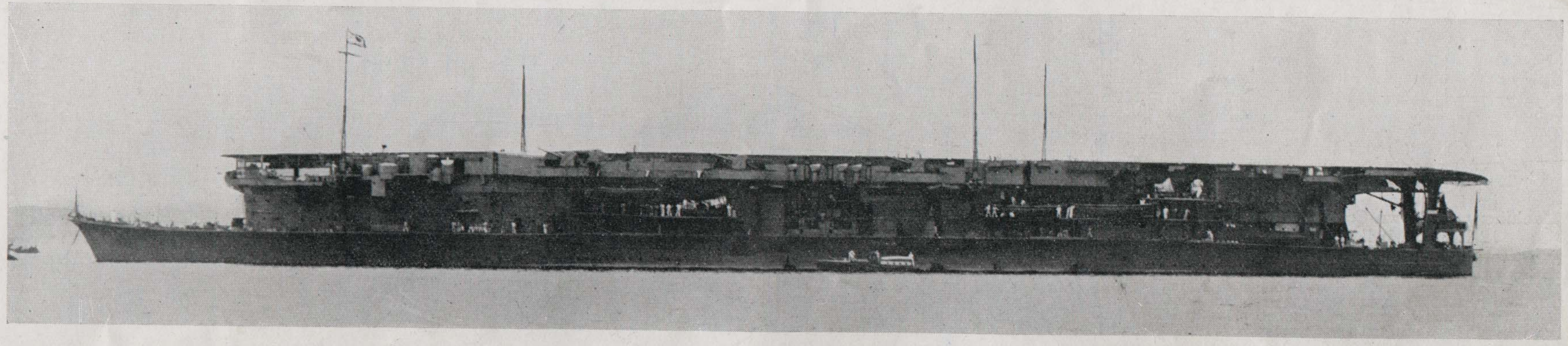
Length: 548 feet. Beam: 60½ feet. Draught: 15⅓ feet.

Guns: **12**—5 inch AA. **24** M.G. 24 aircraft carried.

Machinery: Geared turbines. Kanpon Boilers. S.H.P. 40,000 = 25 kts.

Laid down Nov. 26, 1929. Completed May 9, 1933.

*Note.*—Smoke discharge is arranged through 2 funnels projecting from starboard side. This ship, though completed at Yokosuka Naval Yard, was actually laid down and launched at the Yokohama Dock Company's establishment.



RYUZYO.

1934 *Photo, Official.*

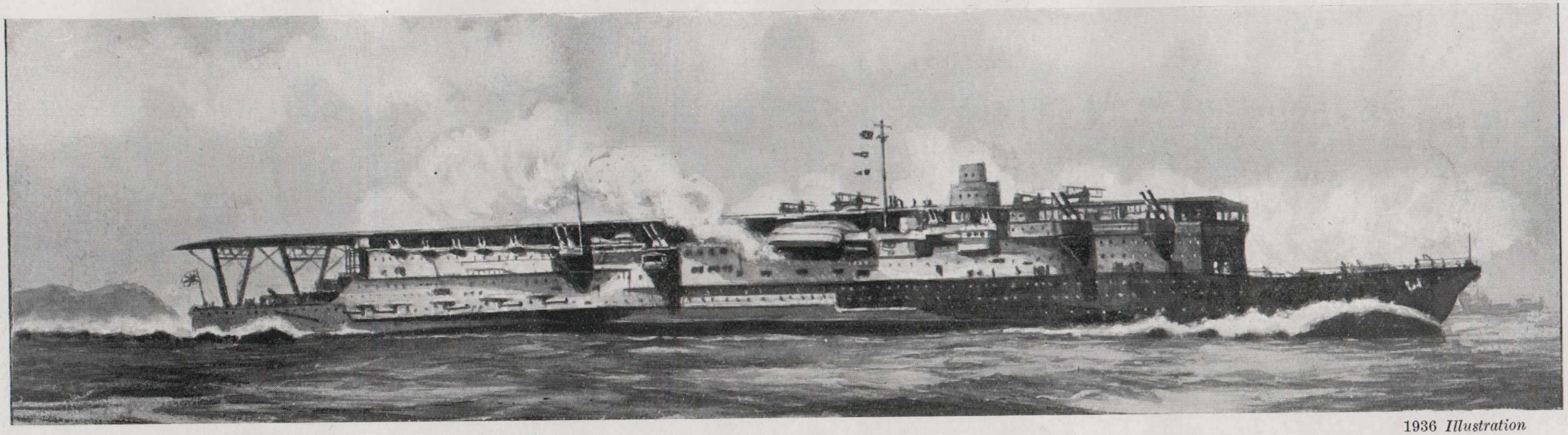
(17th Nov., 1921). 4, 6, 42 Мидуэй,

lacement, 26,900 tons.

gth (*p.p.*) 715 feet.

m $102\frac{3}{4}$ feet.

ught $21\frac{1}{3}$ feet.

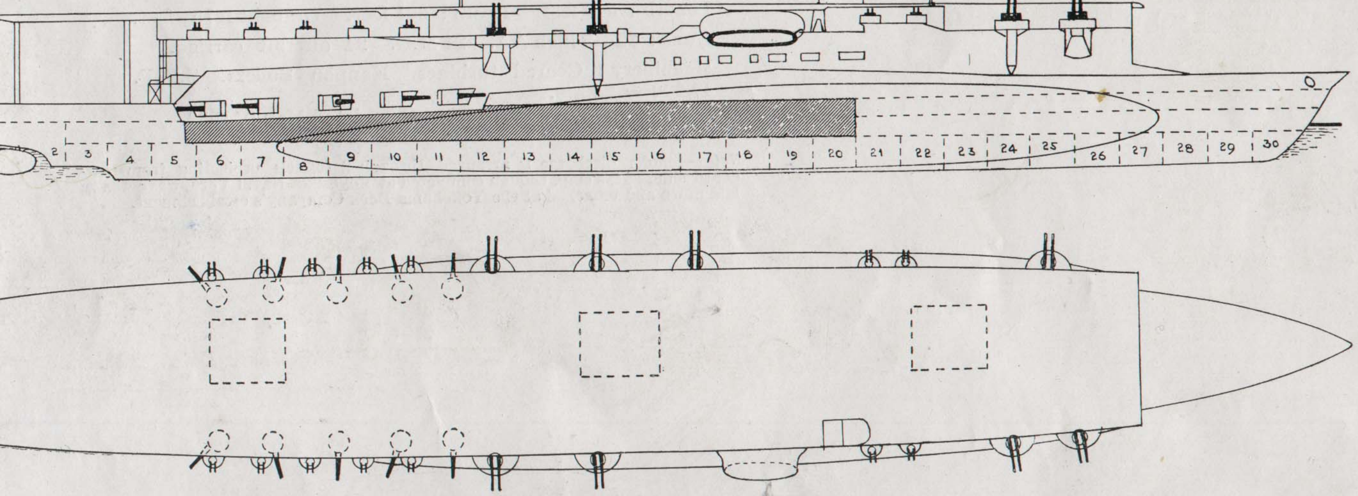


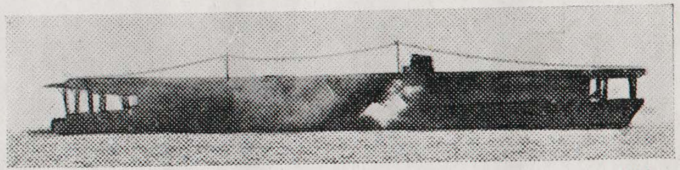
1936 *Illustration*

Flight deck since extended over forecastle as in photo below).

Guns : **10**—8 inch.
**16**—4·7 inch AA.
**28**—M.G.
Aircraft : **60** (Maximum
city; normal complement is 30.)

Armour :
″ Side.
″ Gunhouses.





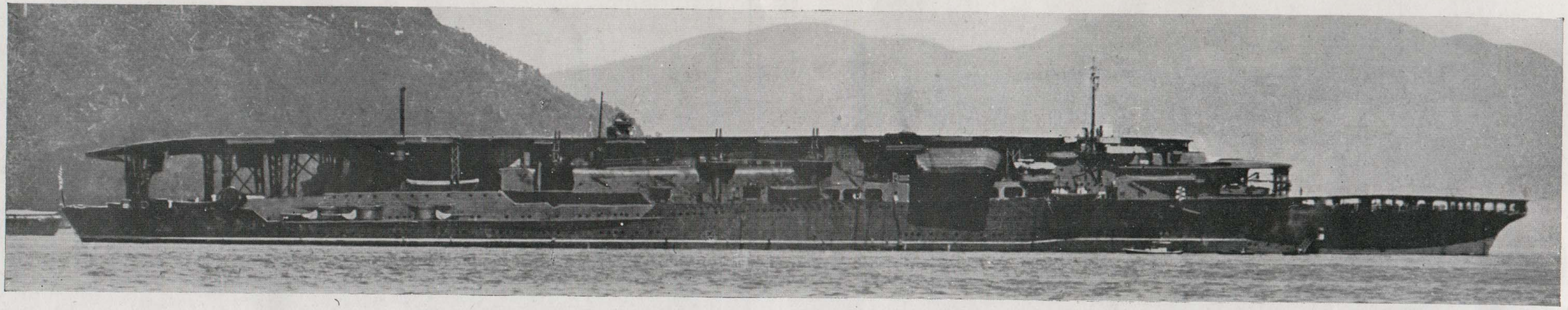
1937

Machinery : Brown-Curtis geared turbines. Designed S.H.P. 91,000 = 23 kts. Oil : 5,300 tons.
12 Kanpon boilers. 4 shafts.

*Notes.*—Originally laid down July 19, 1920, as a battleship of 39,000 tons, under the 1917 " Eight-Four " Fleet Law. As a result of the Washington Treaty, she was converted into an aircraft carrier, forming part of the 1923 Shipbuilding Programme, and was completed March 31, 1928. She was laid down and launched at the Kawasaki Co.'s yard at Kobe, but was towed to Yokosuka for completion as an aircraft carrier. Smoke was formerly discharged through huge trunks on both sides, extending for nearly half the length of the ship and turning outboard towards the stern, but these were removed in course of 1935–36 refit at Saseho.

# † **AKAGI** (Kure Naval Yard, April 22nd, 1925). 04.06.42 Мидуэй

Displacement: 26,900 tons. Length (*p.p.*), 763 feet. Beam, 92 feet. Draught, 21¼ feet.



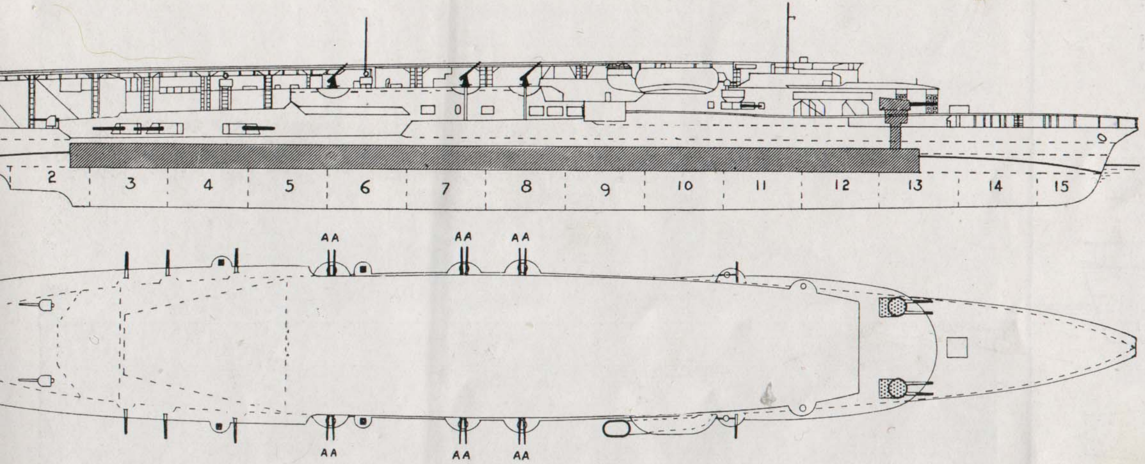
1930 *Photo.*

Under refit at Saseho, 1937, island superstructure being added and upper flight deck extended over bows.

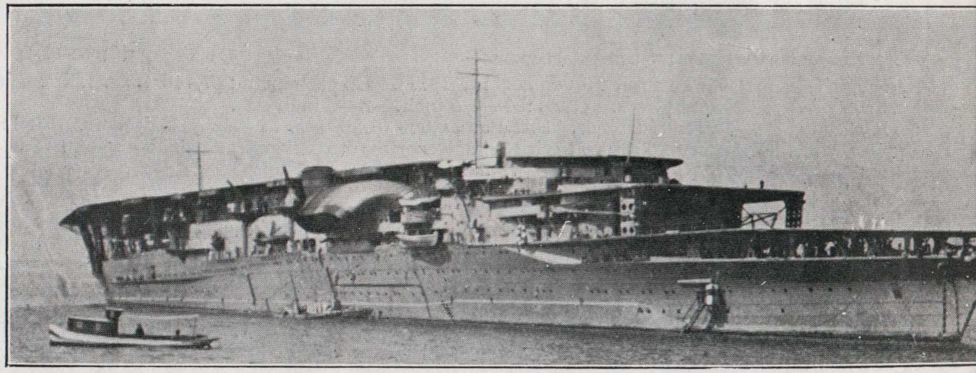
Guns:
- **10**—8 inch.
- **12**—4.7 inch AA.
- **22**—MG.

Aircraft:
- 30 to 50 (see *Notes*)

Armour:
- ″ Side.
- ″ Gunhouses.



Turrets forward now raised a deck higher.



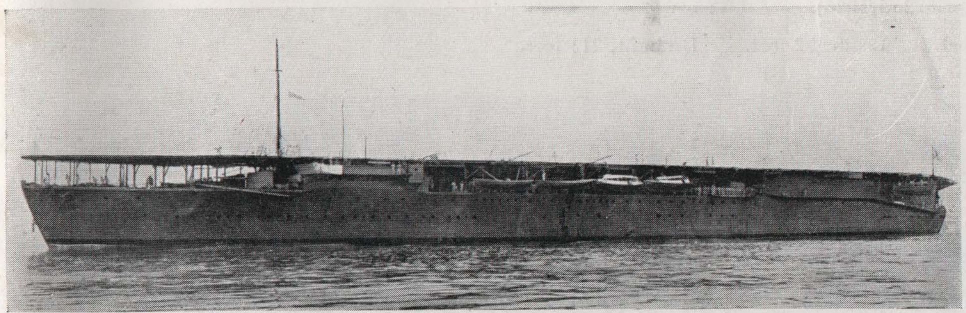
Akagi.

1929 *Photo, Lieut. de Vaisseau*

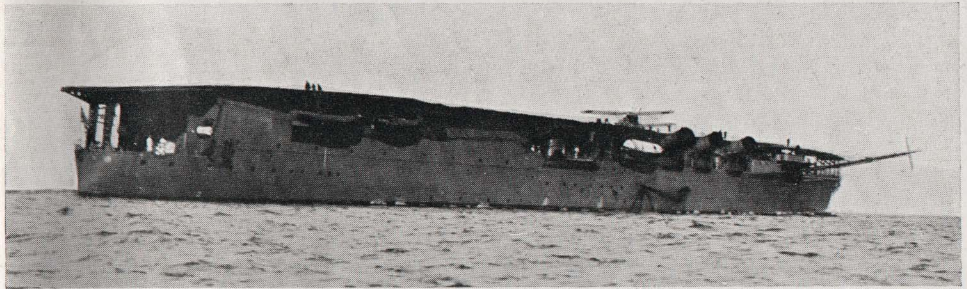
Machinery: Geared turbines. S.H.P.: 131,200=28·5 kts. 19 Kanpon boilers
Fuel: Coal 2100 tons, Oil 3900 tons. 4 shafts.

*Notes.*—Originally laid down on Dec. 6th, 1920, as a battle cruiser of 42,000 tons, under 1917 "Eight-Four" Fleet Law. As a result of the Washington Treaty, she was converted into an aircraft carrier, forming part of 1924 Programme. Completion date, March 25, 1927. Funnels are arranged on starboard side so that the foremost (which is internally divided into four) is trunked outward and downward amidships, while the second projects slightly above flight deck abaft of the first. Though she has accommodation for 50 planes, only about 30 are carried normally. There are 2 aircraft lifts on starboard side, one abaft funnels and a smaller one right astern.

Sister ship. *Amagi*, laid down at Yokosuka Dockyard, and launched late in 1922, was so badly damaged by earthquake and fire, September, 1923, that her construction was abandoned, and *Kaga's* hull was appropriated to replace her.



HOSYO. *Added* 1935.



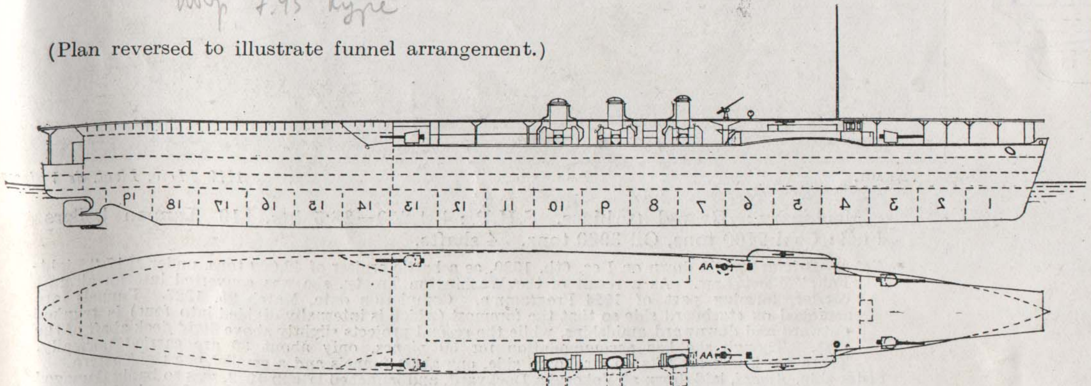
HOSYO with funnels lowered to horizontal position. 1932 *Photo.*

**HOSYO** (Asano Co., Turumi, November 13, 1921). Displacement: 7,470 tons. Dimensions: 510 (*p.p.*) × 62 × 20¼ feet. Guns: 4—5·5 inch. 2—3 inch AA.

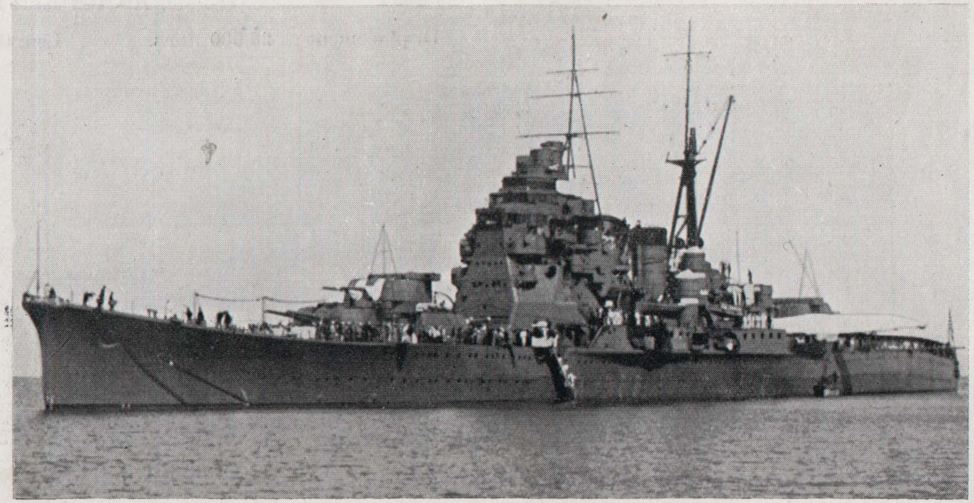
Machinery: 2 geared turbines. S.H.P.: 30,000 = 25 kts. 8 Kanpon boilers. Fuel: Oil only, 550 tons. Can carry 26 aircraft with all accessories, etc., though normal complement seldom exceeds 20. Sperry gyro-stabiliser fitted. 2 searchlights.

[illegible] 7.45 [illegible]

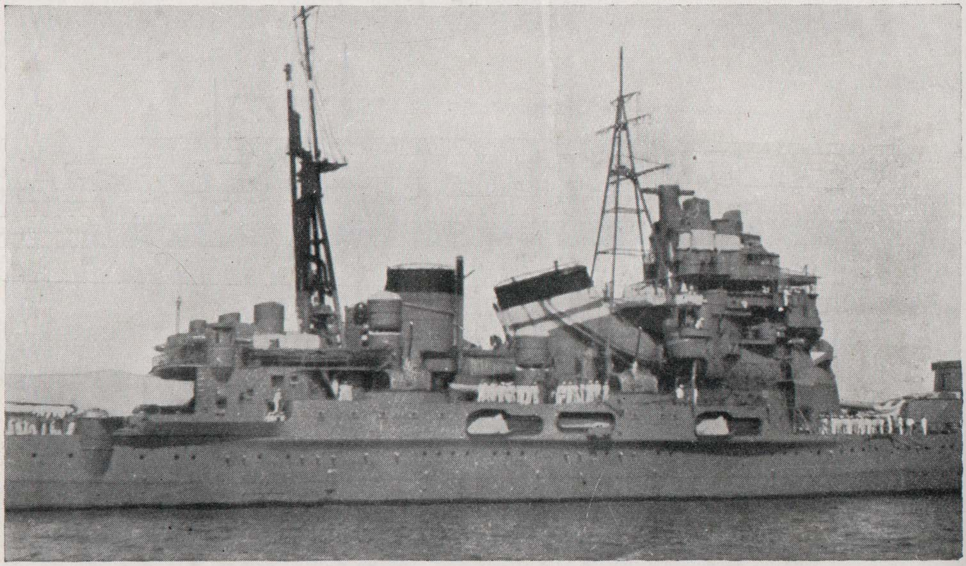
(Plan reversed to illustrate funnel arrangement.)



*Note.*—Laid down December 16, 1919; completed December 27, 1922. The building of a second ship of this type (to have been named *Syokaku*) was cancelled owing to Washington Treaty.

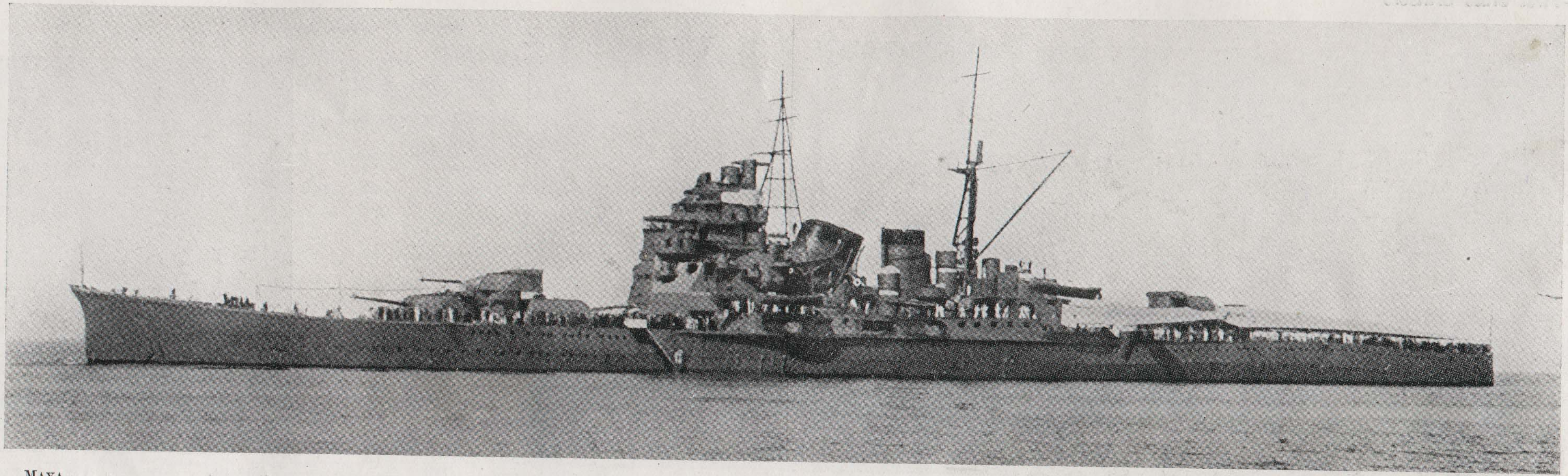


ATAGO. 1933 *Official Photo.*



MAYA. 1933 *Photo.*

(For particulars of above ships, see following page).



MAYA.

(*Additional views on preceding page.*)

1932 *Photo.*

(ATAGO CLASS—4 SHIPS).

+1) **ATAGO** (June 16th, 1930), **TAKAO** (May 12th, 1930), Сильно повр. в Сибуянском
−2 **TYOKAI** (April 5, 1931), +2) **MAYA** (Nov. 8, 1930). п/л

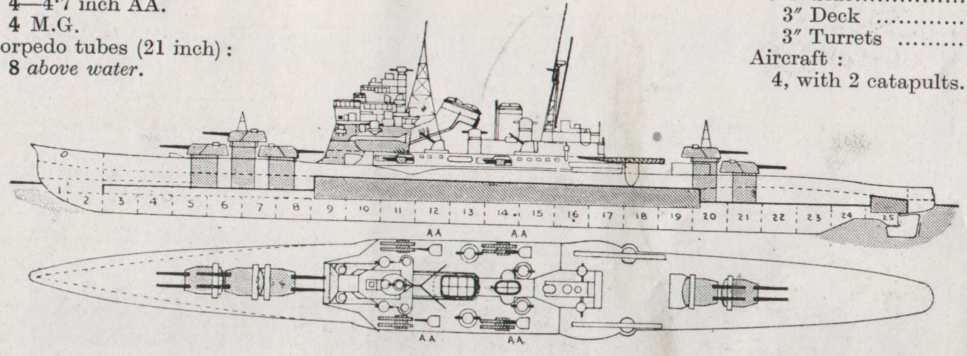
*Standard* displacement, 9,850 tons.

Complement, 692.

Length : 630 (*p.p.*), 650 (*o.a.*) feet. Beam : 62⅓ feet. Draught : 16⅖ feet (*mean*).

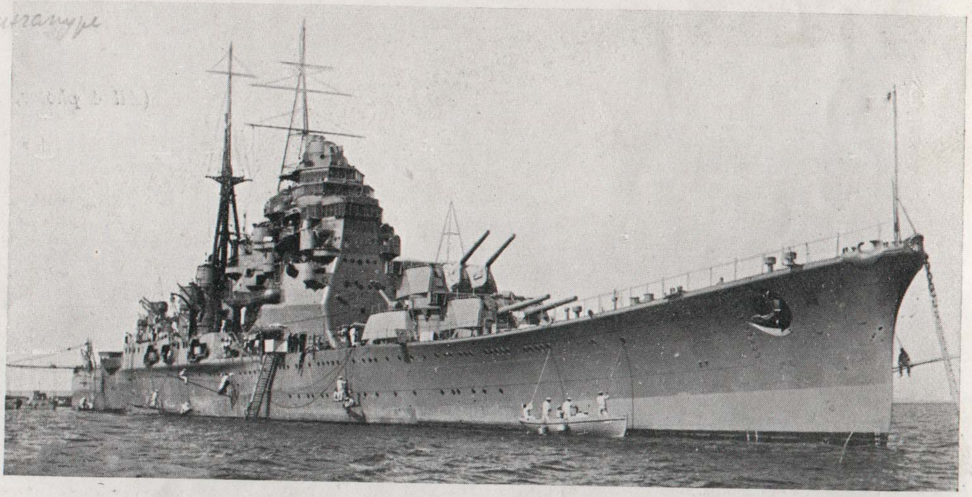
Guns:
10—8 inch, 50 cal.
4—4·7 inch AA.
4 M.G.
Torpedo tubes (21 inch) :
8 *above water*.

Armour (unofficial) :
3-4″ Side....................
3″ Deck ....................
3″ Turrets ..............
Aircraft :
4, with 2 catapults.



Machinery : Geared turbines. Boilers : 12 Kanpon. S.H.P. 100,000 = 33 kts. *max.* (32 kts. at deep load). Oil : 2,000 tons. Radius at 14–15 kts. : 14,000 miles.

*Notes* :—Provided for under 1925 and later Programmes. Triple hull, designed to give greatest possible protection against submarines. Vertical and deck protection over boiler and machinery spaces is 410 feet long. Guns are a new model with very high muzzle velocity. 4 planes carried. Cost £2,200,000 each.

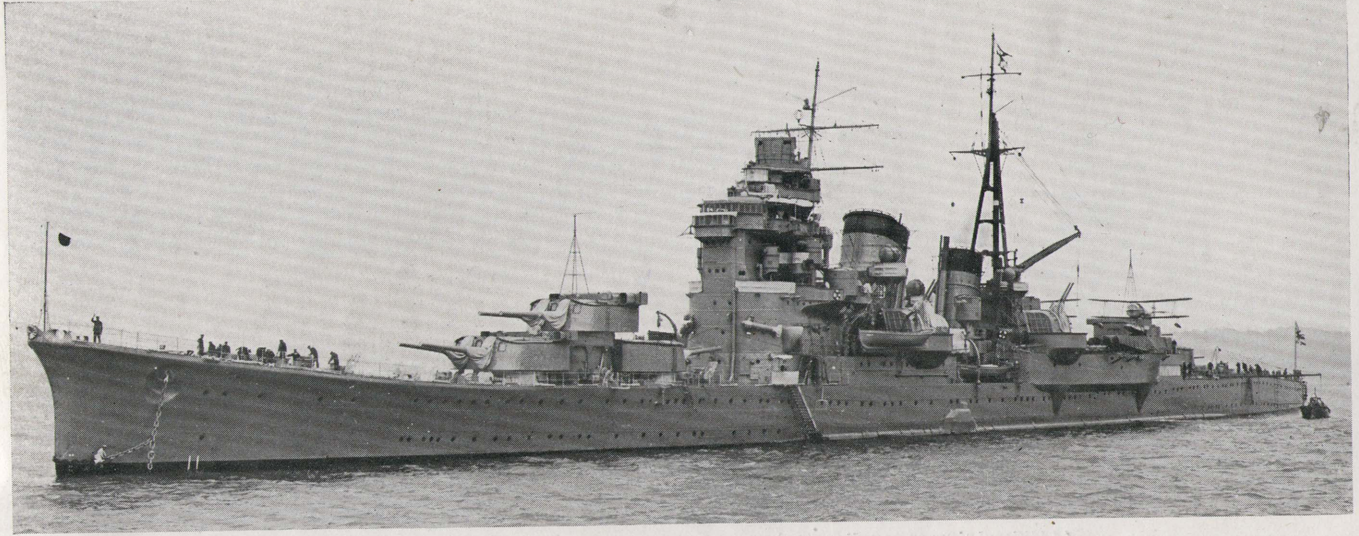


ATAGO.

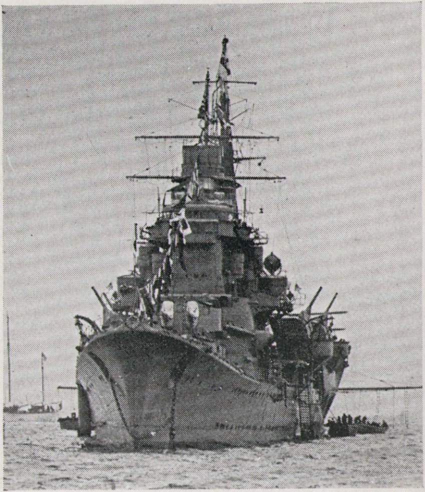
1932 *Photo.*

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* |
|---|---|---|---|---|
| *Atago* | Kure | Kure | 28/4/27 | 30 March 1932 |
| *Takao* | Yokosuka | Yokosuka |  | 31 May 1932 |
| *Tyokai* | Mitubisi | Mitubisi | 26/3/28 | 30 June 1932 |
| *Maya* | Kawasaki, Kobe | Kawasaki | 4/12/28 | 30 ,, 1932 |

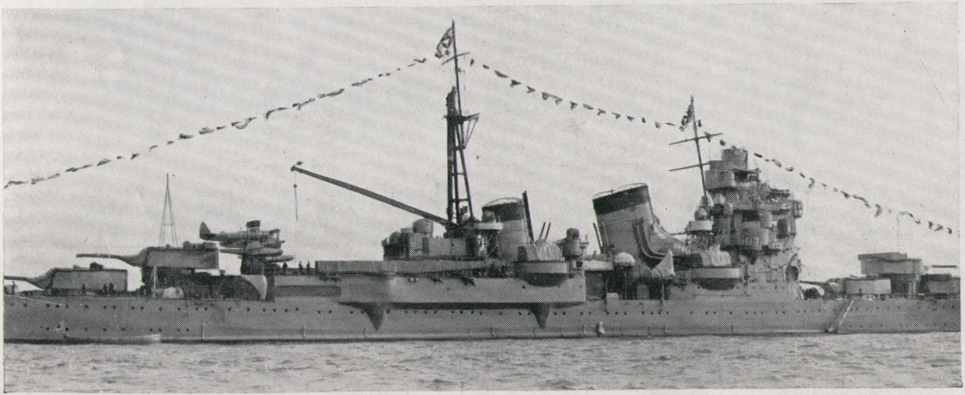
28.10.44 зап Лейте



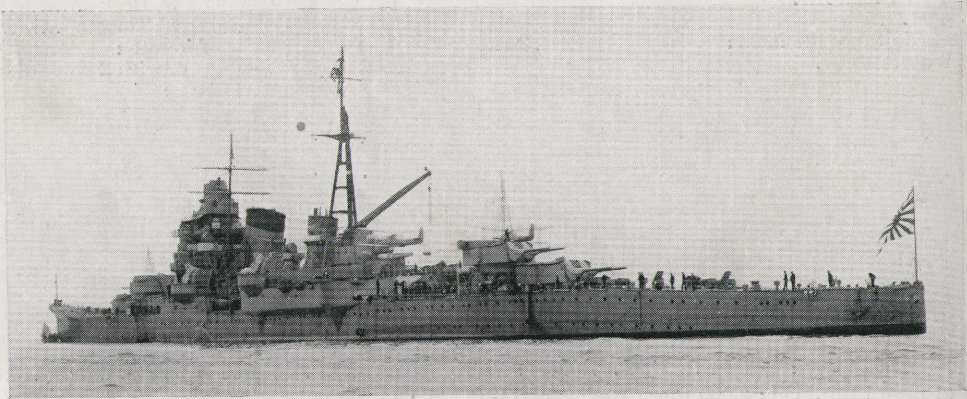
ASIGARA.



ASIGARA.



Asigara.



ASIGARA.

(NATI CLASS—4 SHIPS.)

+ 4) **NATI** (June 15th, 1927), 3) **MYOKO** (April 16th, 1927), + 2 **ASIGARA** (April 22nd, 1928), + 1 **HAGURO** (March 24th, 1928).

Nachi

*Standard* displacement, 10,000 tons.

Complement, 692.

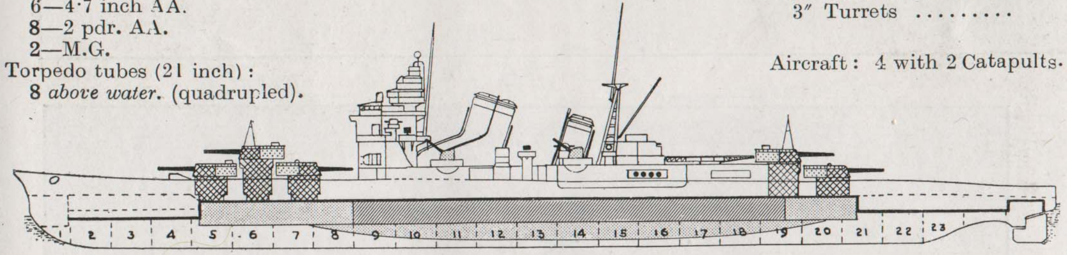
Length (*p.p.*), 630 feet, (*o.a.*), 640 feet. Beam, 62⅓ feet. Draught, 16½ feet (*mean*).

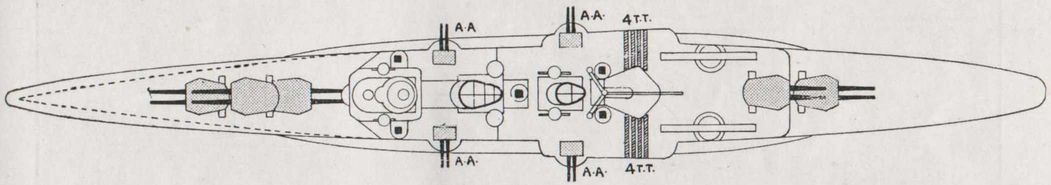
Guns:
10—8 inch, 50 cal.
6—4·7 inch AA.
8—2 pdr. AA.
2—M.G.
Torpedo tubes (21 inch):
8 *above water*. (quadrupled).

*Note to plan:* T.T. actually are slightly further aft than shown, above section 18.

Armour (unofficial):
3″ Side ............
2-3″ Deck ............
3″ Turrets .........

Aircraft: 4 with 2 Catapults.





Machinery: Geared turbines. Boilers: 12 Kanpon. S.H.P. 100,000 = 33 kts. *max.* (32 kts. at deep load). Oil: 2,000 tons. Radius at 14-15 kts.: 14,000 miles.

*Notes.*—Provided for under 1923 and later Programmes. Triple hull, designed to give greatest possible protection against submarines. Vertical and deck protection over boiler and machinery spaces is 410 feet long. Guns are a new model with very high muzzle velocity. Cost £2,200,000 each.

All 4 ships extensively refitted 1934–36, fore funnel being heightened, after control structure extended, anti-aircraft armament augmented and torpedo tubes rearranged in quadruple mountings.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* |
|---|---|---|---|---|---|
| *Nati* | Kure | Kure | 26/11/24 | 26 Nov. 1928 | |
| *Myoko* | Yokosuka | Yokosuka | 25/10/24 | 31 July, 1929 | |
| *Asigara* | Kawasaki Kobe | Kure | 11/4/25 | 20 Aug. 1929 | |
| *Haguro* | Mitubisi | Yokosuka | 16/3/25 | 25 April, 1929 | |

MYOKO 1935 (*Added* 1936).

MYOKO. 1935 (*Added* 1936).

1) 16.5.45 [illegible]
2) 8.6.45 / п/л
3) сильно повр. в Сингапуре
4) 5.11.44 А

(KINUGASA CLASS—2 SHIPS.)

†1) **KINUGASA** (Oct. 24th, 1926), †2) **AOBA** (Sept. 25th, 1926).

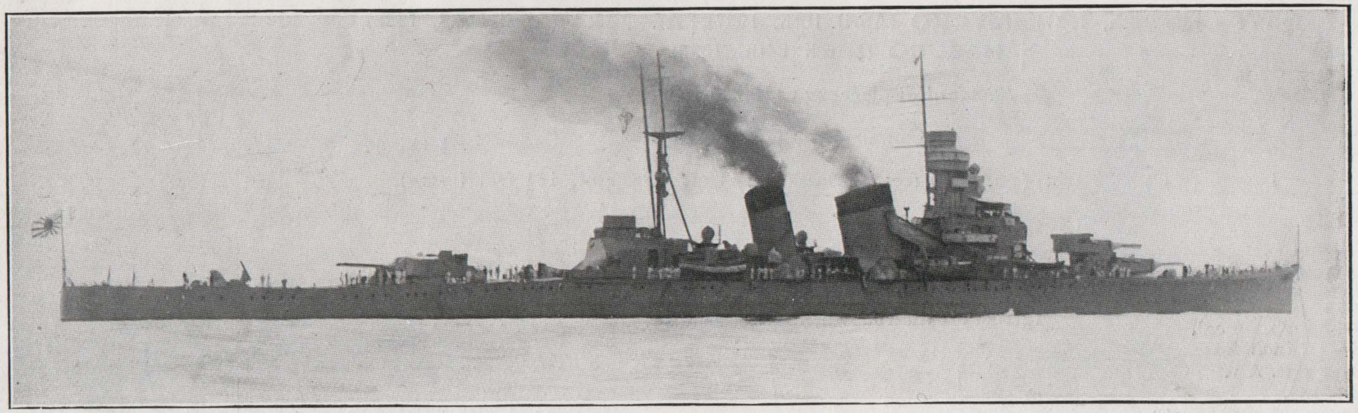
*Standard* Displacement, 7,100 tons. Complement, 604.

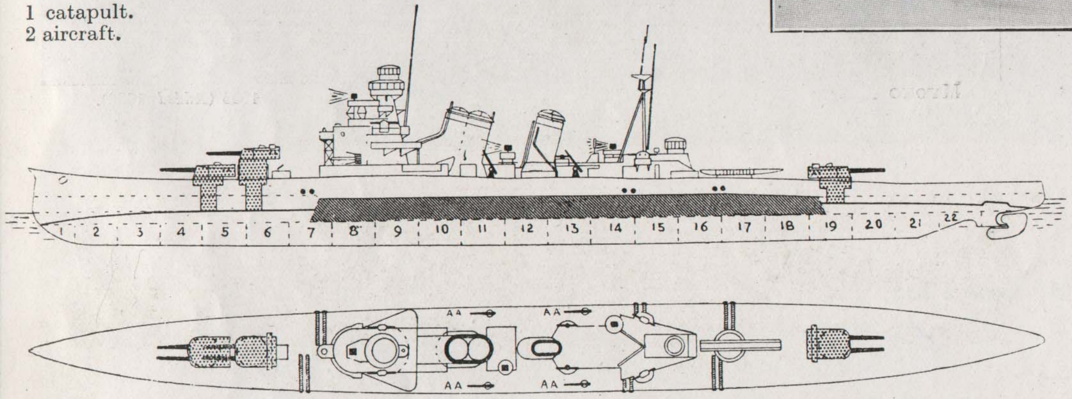
Length (*w.l.*), 580 feet. Beam, 50¾ feet. Draught, 14¾ feet (*mean*).

Guns:
6—8 inch.
4—4·7 inch AA.
10—M.G.
Torpedo tubes (21 inch):
12 *above water*.

1 catapult.
2 aircraft.

Armour: (Unofficial)
2″ Side amidships ....
2″ Deck ..............
1½″ Turrets ............



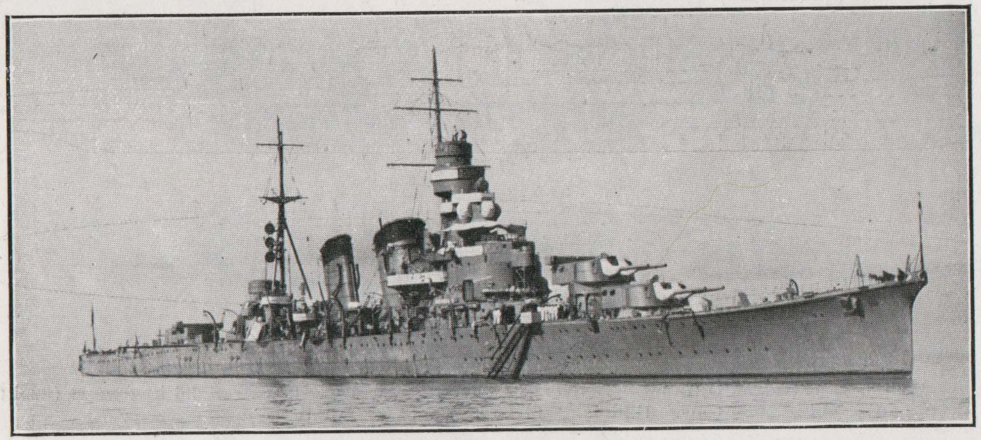


1) 14.11.42 о Гвадалканал 2) Затонул после попад. на малой глубине в Куре 28.7.44

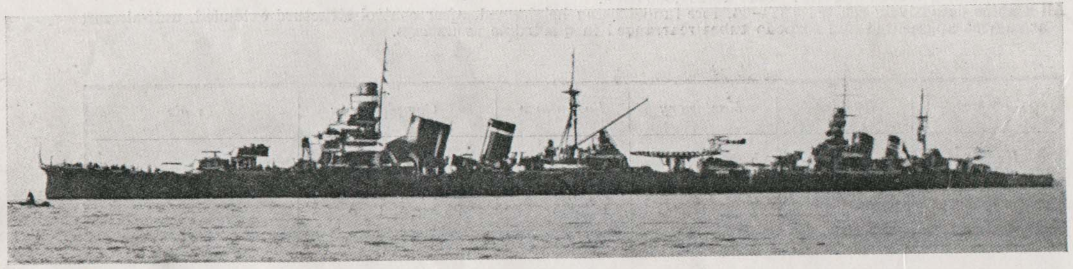
Machinery: Geared turbines. Boilers: 12 Kanpon (10 oil, 2 mixed). S H.P.: 95,000=33 kts. Coal: 400 tons, oil: 1,600 tons.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* |
|---|---|---|---|---|---|
| *Kinugasa* | Kawasaki, Kobe | Kawasaki | 23 Jan., 1924 | 30 Sept., 1927 | |
| *Aoba* | Mitubisi, Nagasaki | Mitubisi | 4 Feb., 1924 | 20 Dec., 1927 | |

*Notes.*—Provided for under 1923 Programme. Although of same general design as *Kako* class, they differ in arrangement of armament.



AOBA. 1927 *Photo* (*added* 1928).



AOBA. KINUGASA. 1934 *Photo.*

(Kako Class—2 Ships.)

+1) **KAKO** (10th April, 1925), +2) **HURUTAKA** (25th Feb., 1925).

*Standard* displacement, 7100 tons. Complement, 620.

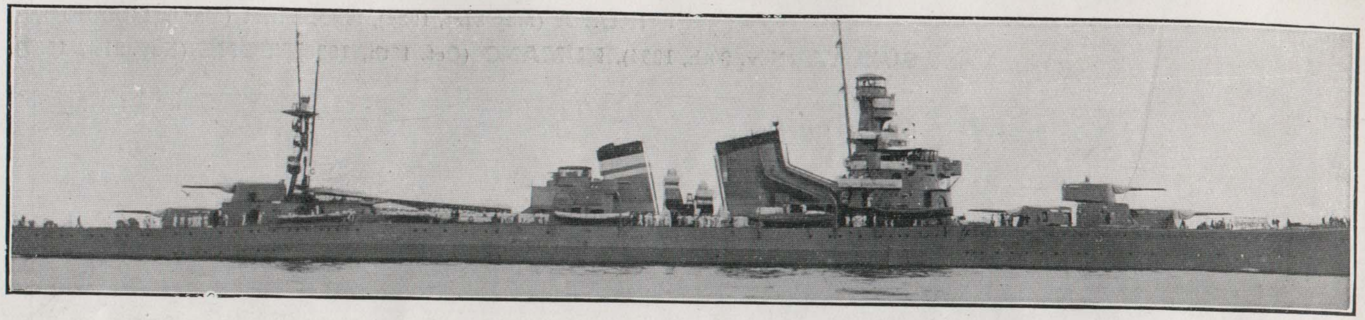
Length (*w.l.*), 580 feet; (*o. a.*) 595 feet. Beam, 50¾ feet. Draught, 14¾ feet (*mean*).

Guns:
- 6—8 inch.
- 4—4·7 inch AA.
- 6 M.G.

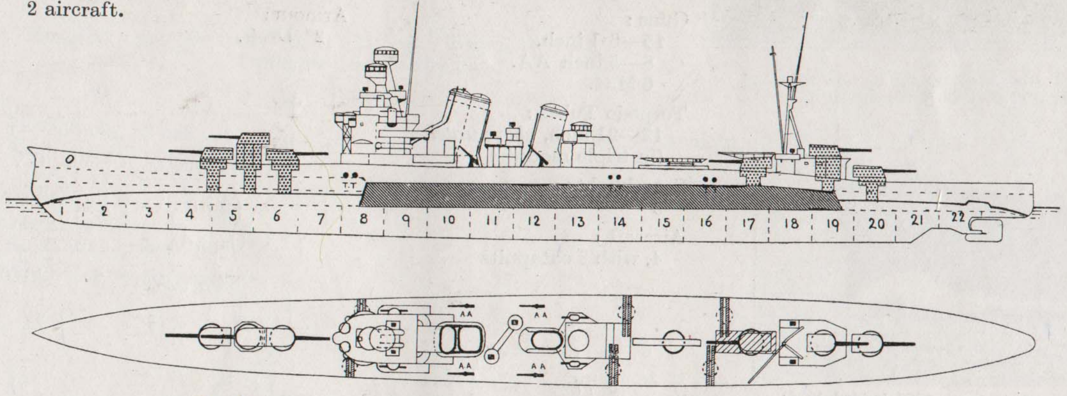
Torpedo tubes (21 inch):
- 12 *above water.*

1 catapult.
2 aircraft.

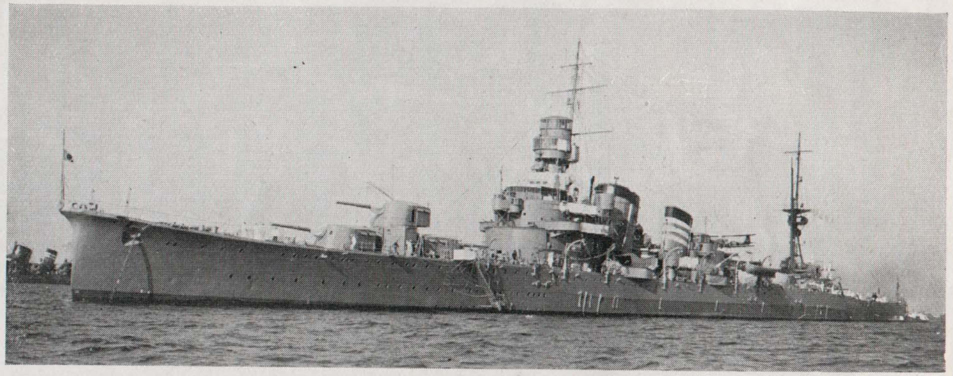
Armour: (unofficial)
- 2″ Side amidships.........
- 2″ Deck .................
- 1½″ Turrets ...............



1928.



Machinery: Geared turbines. Boilers: 12 Kanpon (10 oil, 2 mixed). S.H.P.: 95,000 = 33 kts. Fuel: 400 tons coal, 1200 tons oil.



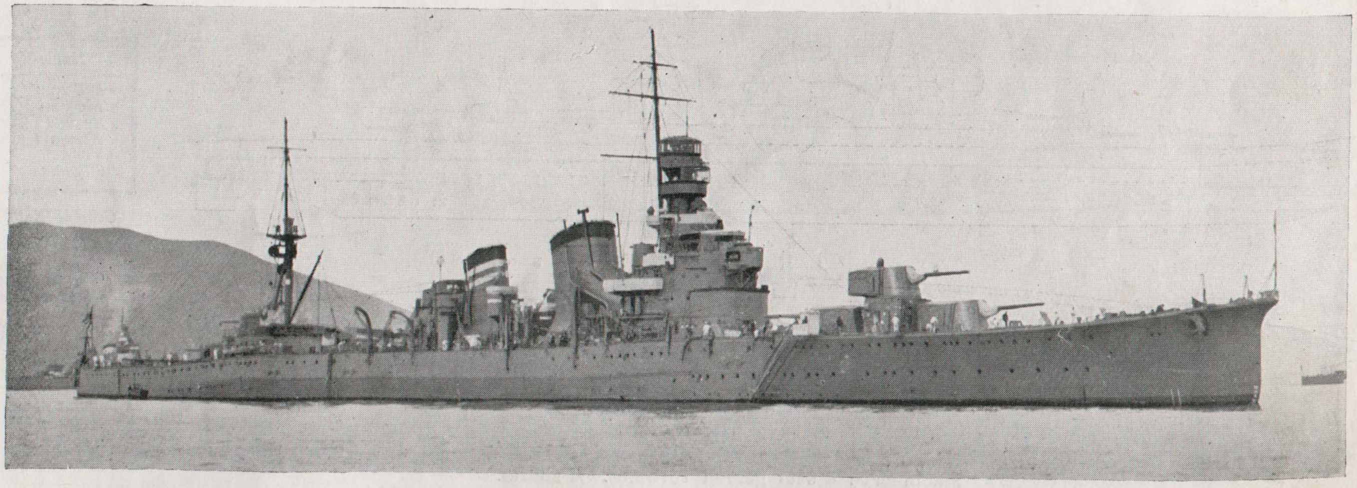
HURUTAKA.

1935 *Official.*

1) 10.8.42
2) 11.10.42 мыс Эсперанс

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* |
|---|---|---|---|---|---|
| *Kako* | Kawasaki, Kobe | Kawasaki | 17.11.22 | 20.7.26 | |
| *Hurutaka* | Mitubisi, Nagasaki | Mitubisi | 5.12.22 | 31.3.26 | |

*General Notes.*—Provided for under 1922 Programme. A most original design, the undulating deck line, gun disposition in six single turrets, curious bridge work and mast, trunked funnels, and angled hull side all being noteworthy features introduced in these ships. Suffer from limited axial gun fire and it is reported that they are deficient in sea-going qualities. *Aoba* and *Nati* designs have been developed from *Kako*, the outstanding characteristics of all being the sacrifice of accommodation and freeboard in order to utilise tonnage for military qualities.

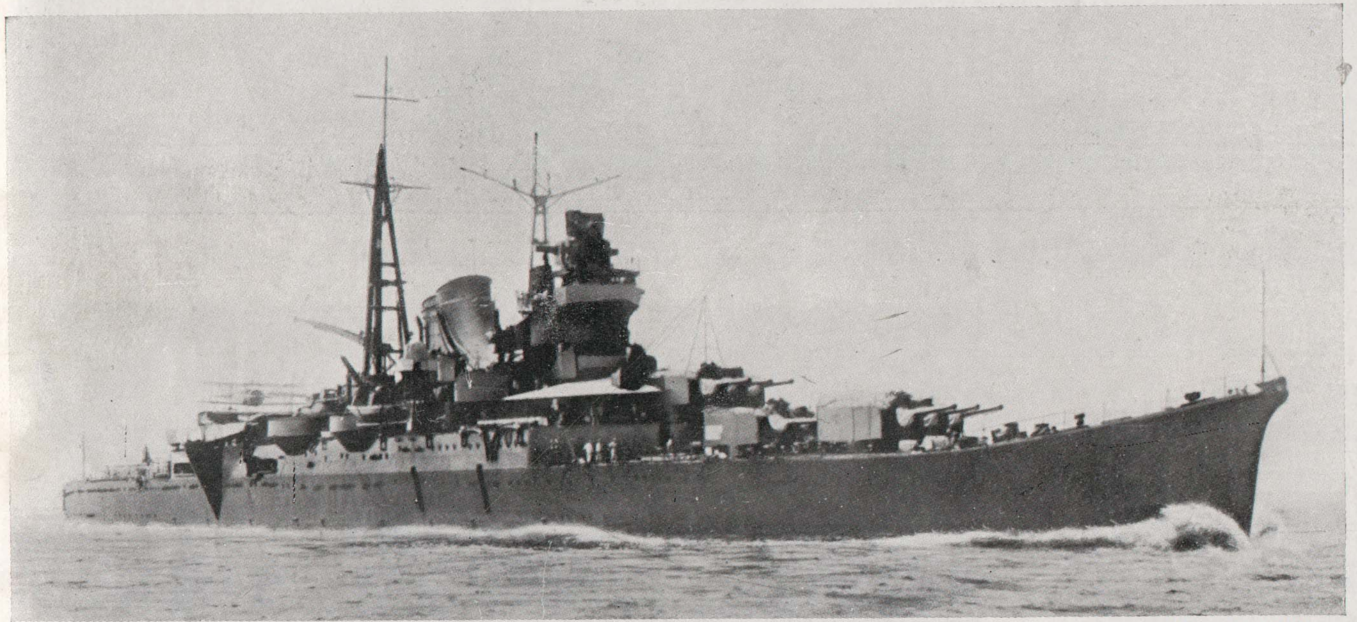


1933 *Photo.*

(6 Mogami Class.)

+ **MIKUMA** (May 31st, 1934), +² **MOGAMI** (March 14th, 1934),
**SUZUYA** (Nov. 20th, 1934), +⁴ **KUMANO** (Oct. 15th, 1936), ⁽³⁾ **TONE** (Nov. 21st, 1937), **TIKUMA** (bldg.).

кр 1 Kashima - в



Mikuma. *As first completed.* 1935 (added 1936)

Standard displacement: 8,500 tons. (*Tikuma*, 8,450 tons).

Complement:

Length (*p.p.*), 625 feet, (*o.a.*) 639¾ feet; Beam, 59¾ feet; Draught, 14¾ feet (*mean*). Last two ships, 614¼ × 63 × 14¾ feet.

Guns:
**15**—6·1 inch.
**8**—5 inch AA.
**6** M.G.

Armour:
2″ Deck.

Torpedo Tubes:
**12**—21 inch, *above water* (in triple mounts)

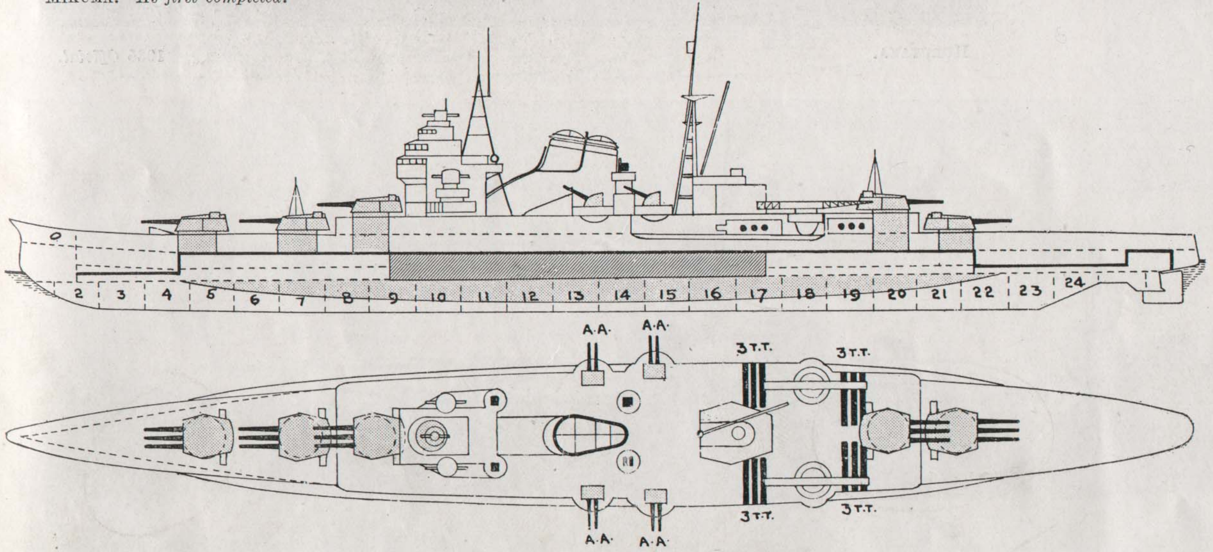
Searchlights:
3

Aircraft:
4, with 2 catapults

+¹ 1. Agano 6000т
+² 2. Noshiro 6-155
3. Yahagi 34 уз
+³ 4. Oyodo
⁴⁾ 5. Sakawa (типа Katori
+ 6 Katori † 02.44

1) 6.6.42 Мидуэй
2) 25.10.44 зал Лейте
3) 28.7.44 после попадания в Куре на малой глубине
4) 25.11.44

1) 16.2.44
2) 26.10.44 зал Лейте
3) 28.7.44 в Куре перевернулся
4) незн. повр. в Майдзуру ат
4) отдан союзн.



Machinery: 4 sets geared turbines. 4 shafts.
Boilers: 10 Kanpon in first 2 ships; 8 in others. Designed H.P.: 90,000 = 33 kts.

| *Name* | *Builder* | *Machinery* | *Begun* | *Completed* |
|---|---|---|---|---|
| *Mikuma* | Mitubisi | Mitubisi | 24 Dec., 1931 | 29 Aug., 1935 |
| *Mogami* | Kure | | 27 Oct., 1931 | 28 July, 1935 |
| *Suzuya* | Yokosuka | | 11 Dec., 1933 | 31 Oct., 1937 |
| *Kumano* | Kawasaki | Kawasaki | 5 April, 1934 | 31 Oct., 1937 |
| *Tone* | Mitubisi | Mitubisi | 1 Dec., 1934 | |
| *Tikuma* | Saseho | | 1 Oct., 1935 | |

*General Notes.*—First four laid down under Fleet Replenishment Law of 1931; remaining two under Law of 1933. *Mogami* and *Mikuma*, though delivered complete on dates named above, did not join the fleet until more than a year later, various modifications having to be made as the result of trials. *Suzuya* and *Kumano's* official completion date uncertain. Trials began in July, 1937. Progress of *Tone* believed to have been delayed by alteration of original design to incorporate improvements adopted as the result of experience with *Mikuma* and *Mogami*.

*Appearance Notes.*—*Mogami* has one and *Mikuma* two white bands around funnel. There are other small differences in appearance as completed.

4 кр. типа Могами переобр. в тяж. кр. - 10-203
2 кр. типа Tone переобр. в тяжел. кр 8-203

к началу войны 1
Строились по плану 14
Остальные 4

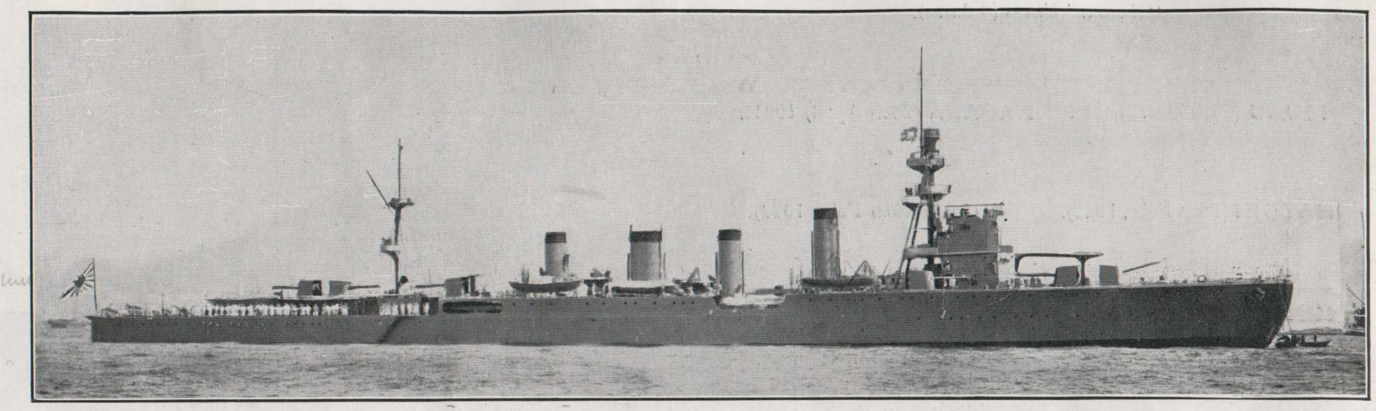
(ZINTU CLASS—3 SHIPS.)

+ **ZINTU** (8th Dec., 1923), + **NAKA** (24th March, 1925), Δ
17.2.44.

+ **SENDAI** (30th Oct., 1923). Δ 2.11.43 [illegible]

*Standard* displacement, 5195 tons. Complement, 450.

Length (*p.p.*), 500 feet; (*o.a.*) 535 feet. Beam, 46¾ feet.
Draught, 15 feet 10½ in.



SENDAI (Now rebuilt as *Naka*, with funnels equal height, tripod mainmast and derrick, catapult aft and aircraft platform removed from forecastle).

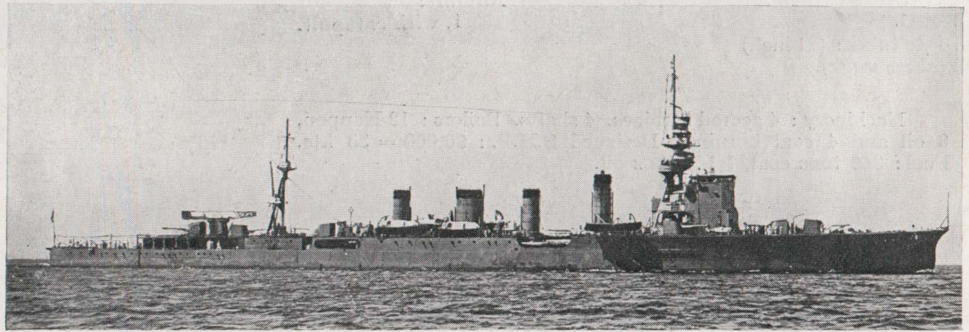
*Photo added* 1926.

Guns:
7—5·5 inch, 50 cal.
2—3 inch, 13 pdr., 40 cal. AA.
6 M.G.

Torpedo tubes:
8—21 inch, *above water.*

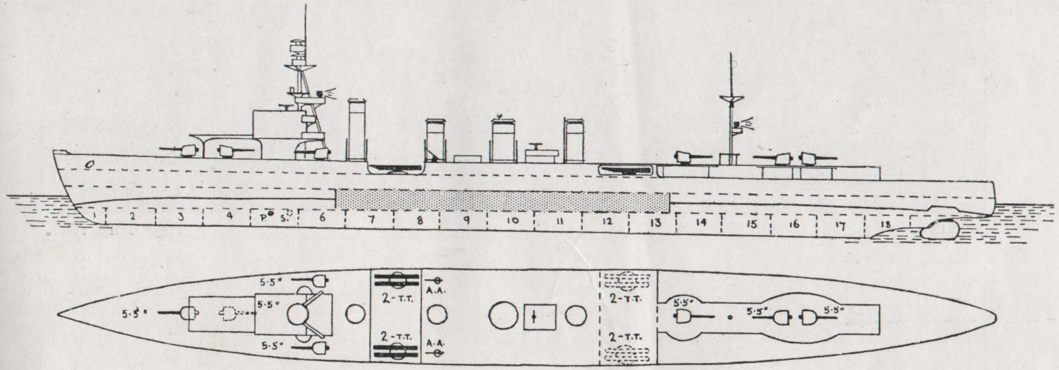
Aircraft: 1, with catapult

Armour:
2″ Side (amidships) ........
2″ C.T. ..................



NAKA.

1935 *appearance.*



Machinery: 4 geared turbines. 4 shafts. Boilers: 12 Kanpon. Designed S.H.P. 90,000 = 33 kts. Fuel: 300 tons *coal.* 1200 tons *oil.*

| *Name* | *Builder* | *Machinery* | *Begun* | *Completed* | *Trials* |
|---|---|---|---|---|---|
| *Zintu* | Kawasaki, Kobe | Kawasaki | 4 Aug., '22 | 31 July, '25 | |
| *Sendai* | Mitubisi, Nagasaki | Mitubisi | 16 Feb., '22 | 29 Apr., '24 | |
| *Naka* | Yokohama Dock Co. | Mitubisi | 10 June, '22 | 30 Nov., '25 | |

*General Notes.*—Slightly enlarged and improved editions of *Natori* class on following page. The launch of *Naka* was delayed by earthquake of Sept., 1923. Catapult fitted 1929. Foremost boiler is fitted for mixed firing.

"NATORI" CLASS (6 SHIPS).

† **ISUZU** (29th Oct., 1921). s/m † **NAGARA** (25th April, 1921). s/m 17.8.44
7.8.45

† **NATORI** (16th Feb., 1922). s/m † **YURA** (15th Feb., 1922). | 25.11.42
18.8.44

26.10.44 sw Leyte
† **KINU** (29th May, 1922). | † **ABUKUMA** (16th March, 1923). | 26.10.44 sw Leyte

*Standard* displacement, 5170 tons. Comp., 438.
Length (*p.p.*) 500 feet, (*o.a.*) 535 feet. Beam, 46¾ feet.
Draught, 15 feet 10½ in.

Guns :—
7—5·5 inch, 50 cal.
2—3 inch, 13 pdr. 40 cal. AA.
2 M.G.
Torpedo tubes: (21 inch)
8 (*above water*).

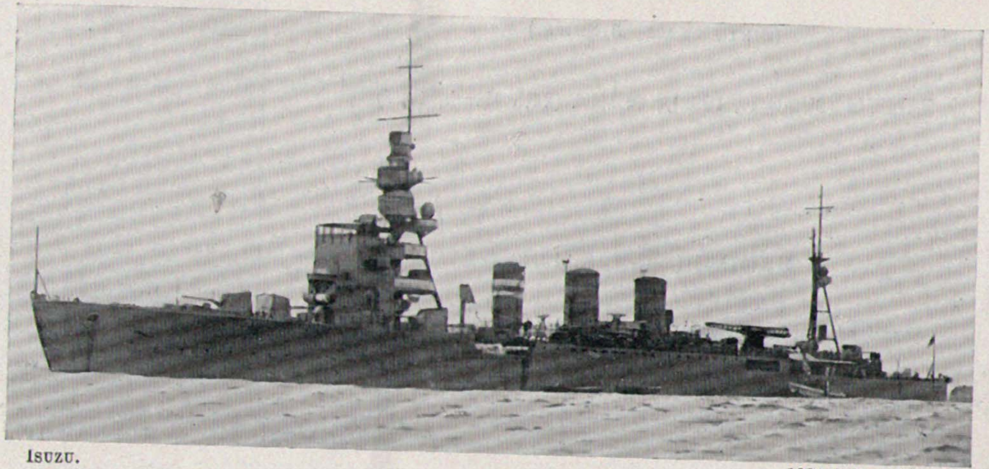
Armour:
2″ Side (amidships).
2″ C.T.
Aircraft:
1, with catapult.

Machinery: 4 geared turbines. 4 shafts. Boilers: 12 Kanpon, 8 oil and 4 coal burning. Designed S.H.P.: 90,000 = 33 kts. Fuel: 350 tons coal, 1,150 tons oil.

*Plan*: Details generally as *Kuma*. Formerly had aircraft hangar forward but this has been removed from most if not all of class.

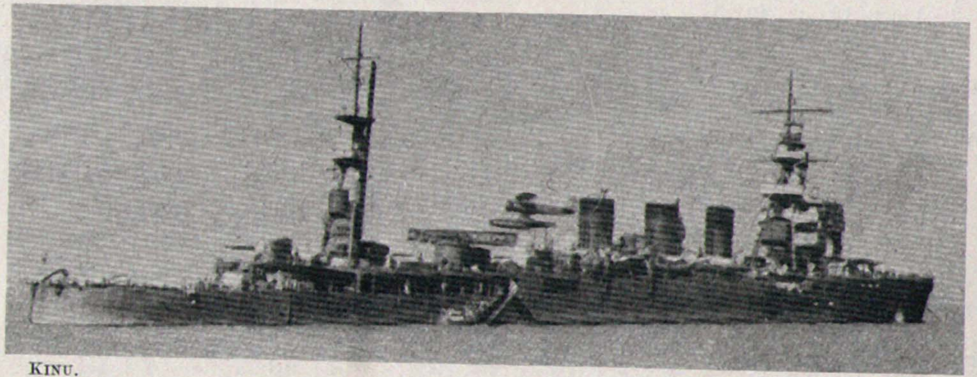
| *Name* | *Builder* | *Machinery* | *Begun* | *Completed* | *Trials (unofficial)* |
|---|---|---|---|---|---|
| *Isuzu* | Uraga Dock Co. | Mitubisi | 10 Aug., '20 | 15/8/23 | |
| *Nagara* | Sasebo | Kawasaki | 9 Sept., '20 | 21/4/22 | |
| *Natori* | Mitubisi, Nagasaki | Mitubisi | 14 Dec., '20 | 15/9/22 | 65,000 = 33.4 |
| *Kinu* | Kawasaki Co., Kobe | Kawasaki | 17 Jan., '21 | 10/11/22 | |
| *Yura* | Sasebo | Kawasaki | 21 May, '21 | 20/3/23 | |
| *Abukuma* | Uraga Dock Co. | Mitubisi | 8 Dec., '21 | 26/5/25 | |

*General Notes.*—Commencement authorised by 1919 Naval Programme. Cost of each ship is said to be £1,750,000. Completion of ABUKUMA was delayed owing to earthquake damage at Uraga Yard in Sept., 1923.



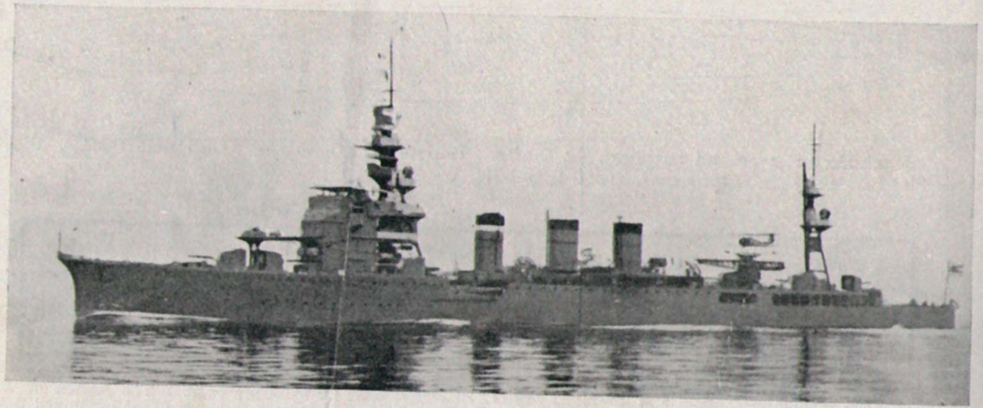
ISUZU.

1934 (*added* 1935).



KINU.

Aug. 1937.



YURA, NATORI and ABUKUMA (showing catapult mounted between guns Nos. 5 and 6).

1934 *Photo.*

KUMA CLASS—5 SHIPS.

† **KUMA** (July 14th, 1919), [illegible] 11.01.44 **TAMA** (Feb. 10th, 1920),

† **OI** [illegible] 19.6.44 (July 15th, 1920),

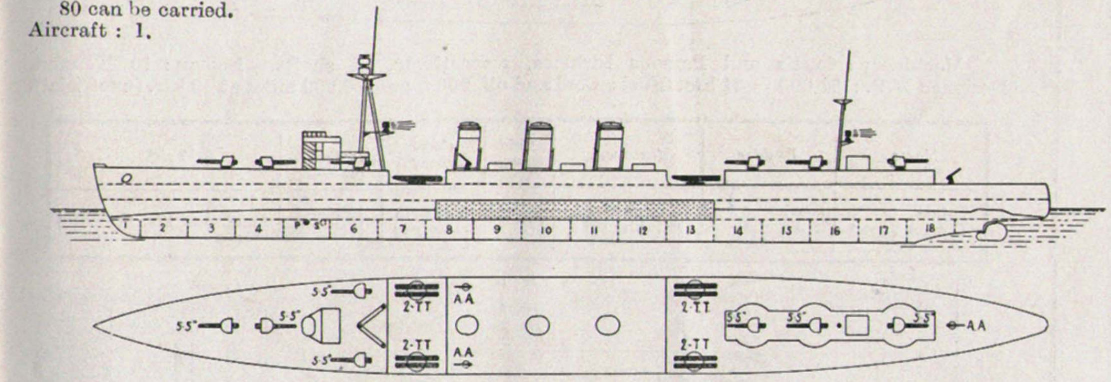
**KITAKAMI** (July 3rd, 1920), [illegible] 26.7.44 [illegible] † **KISO** [illegible] 13.11.44 (Dec. 14th, 1920).

*Standard* displacement, 5100 tons. Complement, 439.
Length (*p.p.*) 500 feet, (*o.a.*) 535 feet. Beam, 46¾ feet. *Mean* draught, 15¾ feet.

Guns:
7—5·5 inch, 50 cal.
2—3 inch (13 pdr.), 40 cal.
2 M.G.
Torpedo tubes (21 inch):
8 *above water*.
Searchlights:
3—30 inch.
Mines:
80 can be carried.
Aircraft: 1.

Armour (*unofficial*):
2″ (H.T.) Side (amidships) .......
2″ C.T. ........................

*Note to Plan.*—Apparent rake shown in plan does not exist. Foremast control tops now as in photos.

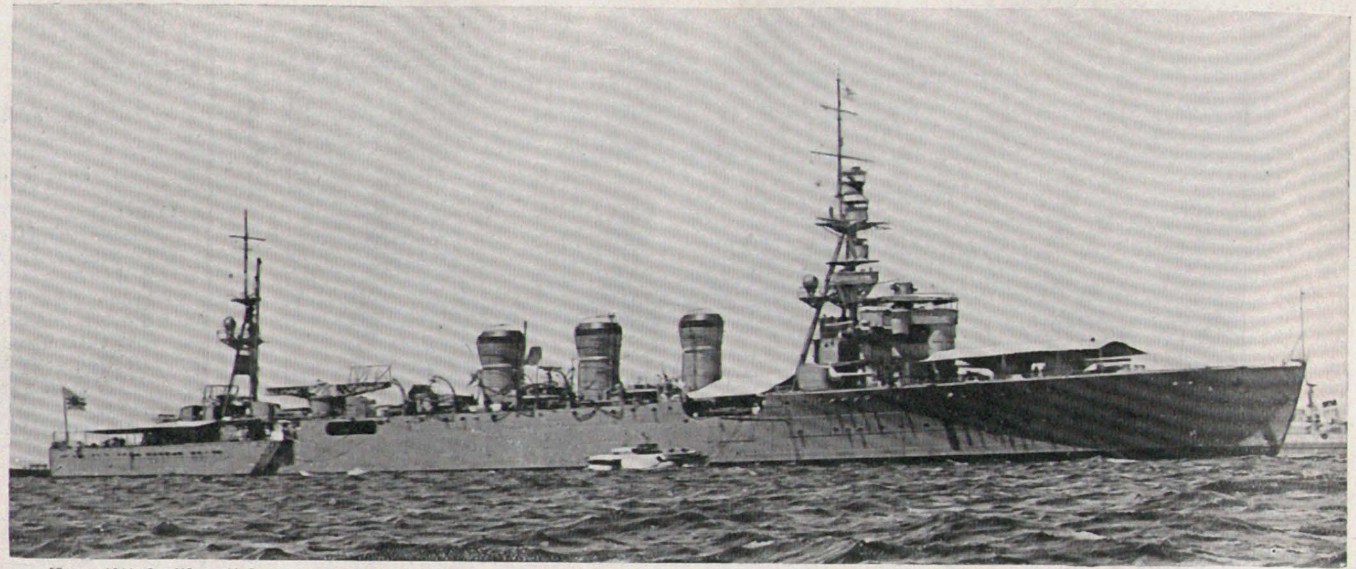


Ahead: 3—5·5 inch. Broadside: 6—5·5 inch, 4—21 inch T.T. Astern: 1—5·5 inch.

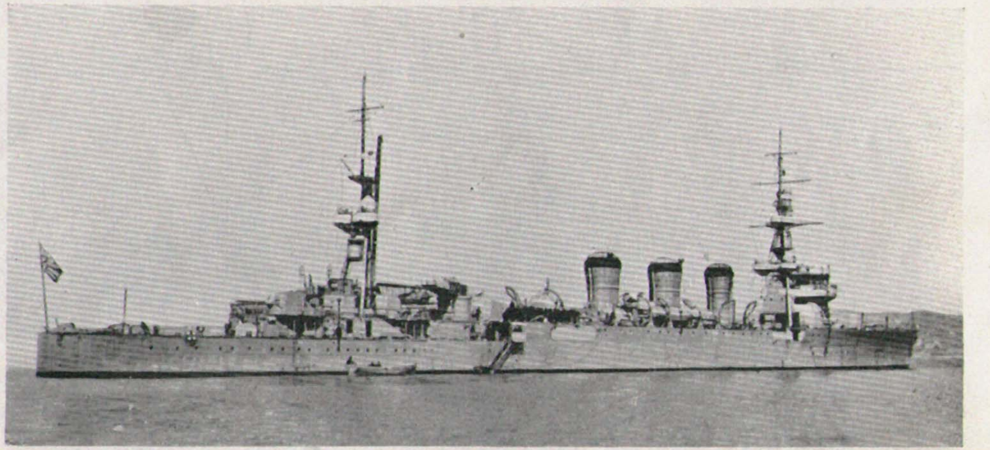
Machinery: Geared Parsons or Curtis Turbines. 4 shafts. Boilers: 12 Kanpon, 10 oil fuel, 2 mixed firing. Designed H.P. 90,000 = 33 kts. Fuel: *normal*, 350 tons; *maximum*, about 1500 tons = 8500 miles at 10 kts.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *First Trials.* | *Boilers.* |
|---|---|---|---|---|---|---|
| *Oi* | Kawasaki | Kawasaki | 24/11/19 | 3/10/21 |  | All 12 Kanpon. |
| *Kitakami* | Saseho | Kawasaki | 1/9/19 | 15/4/21 |  |  |
| *Kiso* | Mitubisi<br>Nagasaki | Mitubisi | 10/6/19 | 4/5/21 | –34 |  |
| *Kuma* | Saseho | Kawasaki | 29/8/18 | 31/8/20 |  |  |
| *Tama* | Mitubisi<br>Nagasaki | Mitubisi | 10/8/18 | 29/1/21 |  |  |

*General Notes.*—No official data published concerning trials, but are reported to have averaged about 64,500 and about 33 kts. Cost about £1,000,000 each. An aeroplane was added to the equipment of these ships in 1927.

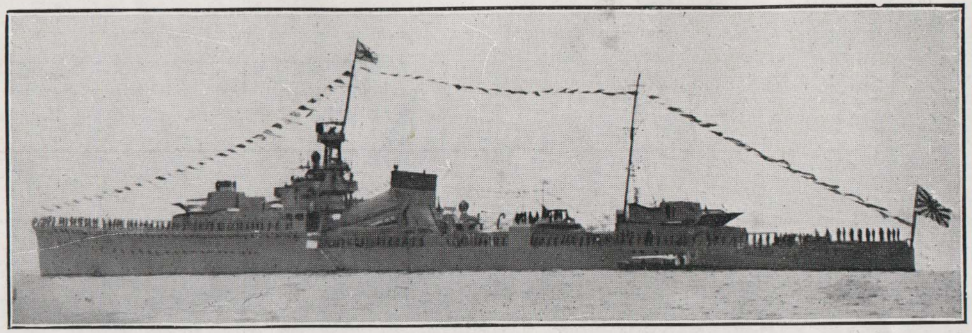


KUMA (fitted with anti-flare tops to funnels). 1935 *Official.*



KUMA 1937.

*General Notes.*—*Kuma* and *Tama* begun under the 1917 Naval Programme; *Oi, Kitakami, Kiso* under 1918 Programme. Completion of *Oi* delayed by failure of one of her engines when she was running trials at end of Dec., 1920. Said to be very efficiently sub-divided and the general scheme of protection has been developed since the war. Fuel supply is somewhat above the average = 6,000 miles at 15 kts., and between 1000 and 1100 miles at full speed.



1928 *Photo.*

## †**YUBARI** (5th March, 1923). 27.4.44

*Standard* displacement, 2890 tons. Complement, 328.
Length (*p.p.*), 435 feet. Beam, 39½ feet. Draught, 11 feet 9 ins.

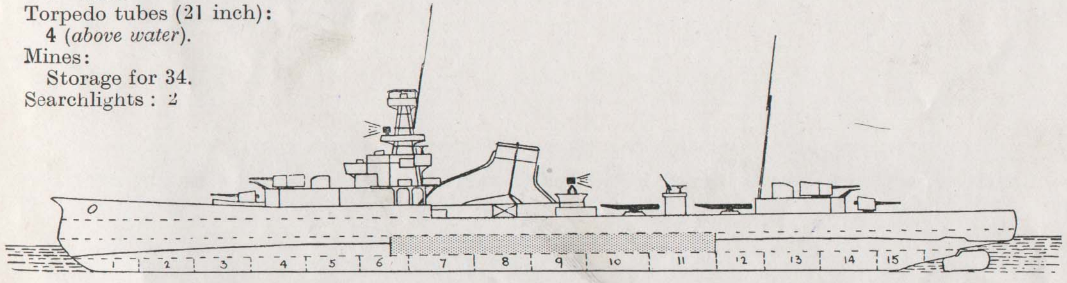
Guns:
- 6—5·5 inch, 50 cal.
- 1—3 inch AA.
- 2—M.G.

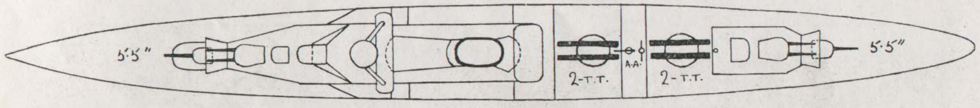
Torpedo tubes (21 inch):
- 4 (*above water*).

Mines:
- Storage for 34.

Searchlights: 2

Armour (unofficial):
- 2″ side (H.T.)





Machinery: Geared Turbines. 3 shafts. Boilers: 8 Kanpon (coal and oil-burning). Designed S.H.P.: 57,000 = 33 kts. Fuel: 820 tons.

*Note.*—Laid down on 5th June, 1922, at Saseho Dockyard. Completed July 31, 1923.

*Torpedo Notes.*—Tubes are arranged so that they can be trained on either broadside.

*Engineering Notes.*—Machinery was built by Saseho Dockyard.

(1916 Programme)

(TENRYU CLASS—2 SHIPS.)

## †**TATUTA** (29th May, 1918) 13.3.44 †**TENRYU** (11th Mar., 1918) 18.12

*Standard* displacement, 3230 tons. Complement, 332.

Length (*o.a.*) 468 feet (*p.p.*), 440 feet. Beam: 40¾ feet. *Mean* draught: 13 feet.

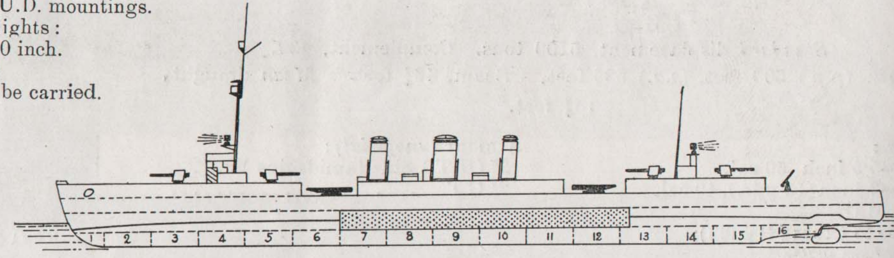
Guns:
- **4**—5·5 inch, 50 cal.
- **1**—3 inch (13 pdr.) 40 cal. AA.
- **2** M.G.

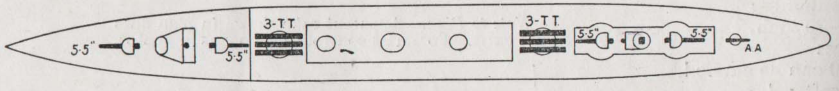
Torpedo tubes: (21 in.)
- **6** *above water* in two triple U.D. mountings.

Searchlights:
- 2—30 inch.

Mines:
- May be carried.

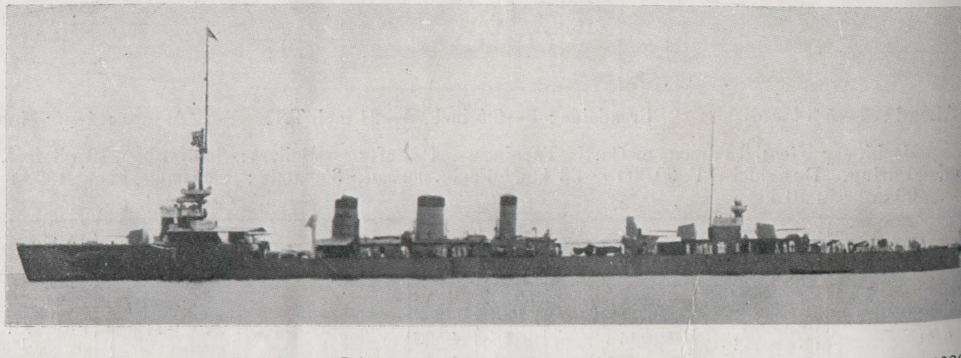
Armour (unofficial):
- 2″ or 1½″ (H.T.) Side amidships ......
- —″ Deck (H.T.) at ends ..............
- —″ C.T. ..............



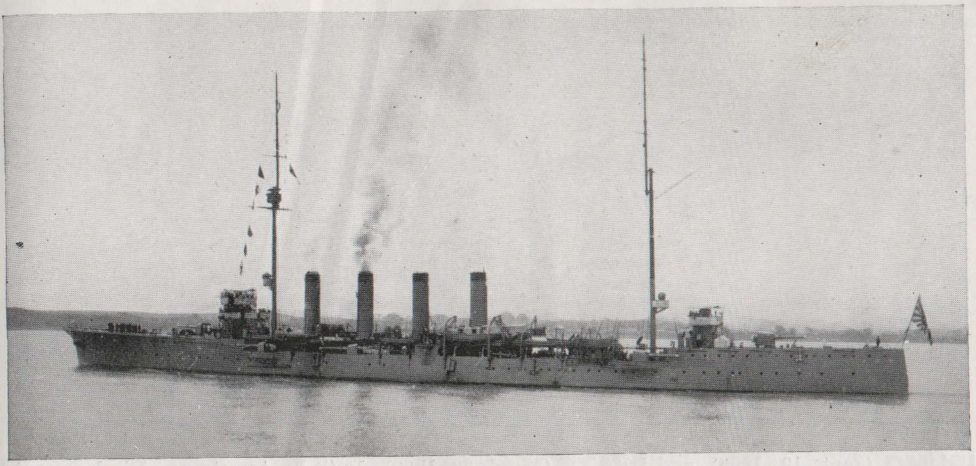


Machinery: Curtis and Parsons turbines, respectively. 3 shafts. Boilers: 10 Kanpo
Designed H.P.: 51,000 = 31 kts. Fuel: Coal and oil, 900 tons = 6,000 miles at 10 kts. (unofficia

| *Name* | *Builder* | *Machinery* | *Laid down* | *Com-pleted* | *2nd Period* | *Trials* |
|---|---|---|---|---|---|---|
| *Tatuta*<br>*Tenryu* | Saseho<br>Yokosuka | Kawasaki<br>Mitubisi | 24/7/17<br>17/5/17 | 31 Mar., '19<br>20 Nov., '19 | 1927—35<br>1927—35 | 51,000 = 33 kts. } |



TATUTA. (Blast screen added forward of third gun.) *Photo added* 192



YAHAGI. 1931 *Photo.*

— | **HIRADO** (June 29th, 1911), + **YAHAGI** (Oct. 3rd, 1911). 7.4.45 y. Kiocup

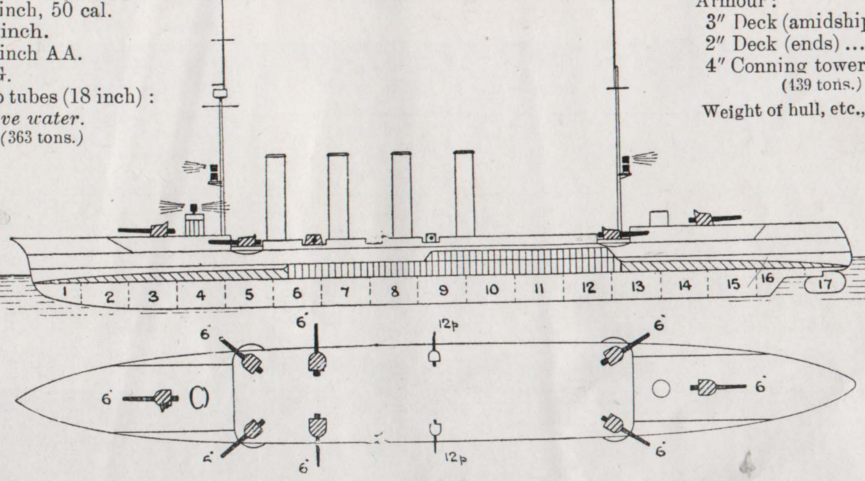
*Standard* displacement 4400 tons. Complement, 452.

Length (*p.p.*), 440 feet; (*o.a.*), 475 feet. Beam, 46½ feet. *Max.* draught, 17⅔ feet.

Guns:
8—6 inch, 50 cal.
2—3 inch.
2—3 inch AA.
2 M.G.
Torpedo tubes (18 inch):
3 *above water.*
(363 tons.)

Armour:
3″ Deck (amidships) ▥
2″ Deck (ends)...... ▨
4″ Conning tower... ▥
(139 tons.)

Weight of hull, etc., 2278 tons.

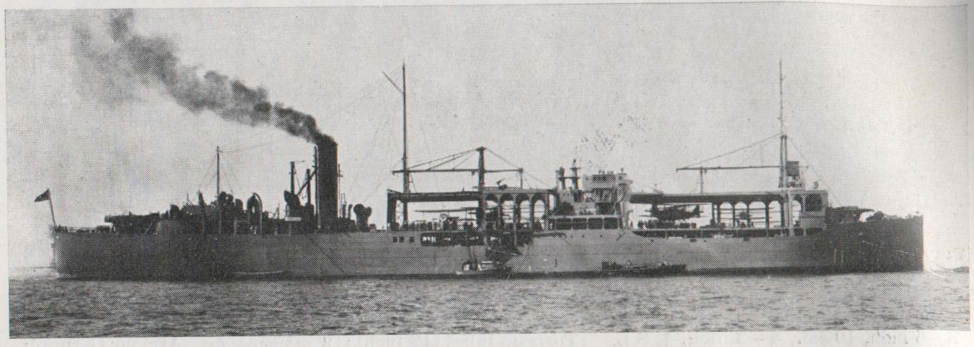


Machinery: *Hirado*, Curtis turbines (2 shafts); *Yahagi*, Parsons turbines (4 shafts). Boilers: 6 Kanpon. Designed H.P 22,500 = 26 kts. Coal: *normal* 500 tons; *maximum* 900 tons + 300 oil = 10,000 miles at 10 kts. *Hirado* now used for training purposes.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Third Period* | *Trials H.P. = kts.* | *Boilers* |
|---|---|---|---|---|---|---|---|
| *Hirado*<br>*Yahagi* | Kawasaki Co.<br>Mitsubisi | Kawasaki Co.<br>Mitubisi | 10/8/10<br>20/6/10 | 17/6/12<br>27/7/12 | 1928-36<br>1928-36 | .........<br>27,408 = 26·8 | Kanpon in all. |

## Seaplane Carriers.

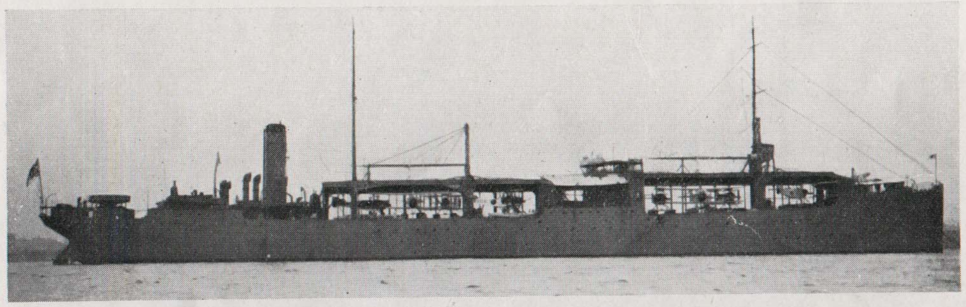
**TITOSE** (Nov. 29, 1936), **TIYODA,** (Nov. 19th, 1937), **MIDUHO.** *Standard* displacement: 9,000 tons. Dimensions: 577½ × 61⅔ × 19 feet (*mean*). Guns: 4—5 inch AA. (paired). Machinery: Geared turbines. H.P.: 15,000 = 20 kts. Building under Second Fleet Replenishment Law, *Titose* having been laid down on Nov. 26, 1934, *Tiyoda* on December 14, 1936, and *Miduho* in 1937, the first two at Kure and the *Miduho* at Kawasaki, Kobe.



KAMOI. 1934 *Photo, Official.*

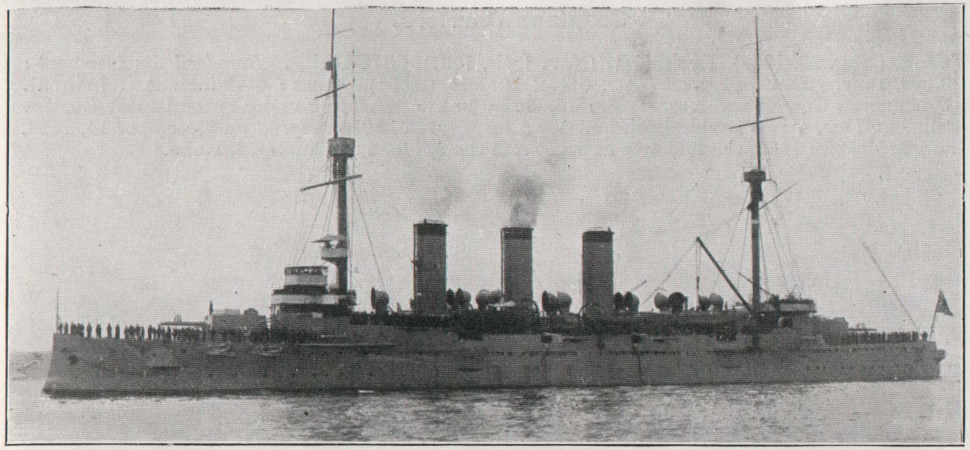
**KAMOI** (New York S.B. Co., June 8, 1922). *Standard* displacement: 17,000 tons (10,222 tons *gross*). Dimensions: 496 (*w.l.*), 478½ (*p.p.*) × 67 × 27⅔ feet. Guns: 2—5·5 inch, 2—3 inch AA. Machinery: G.E. (Curtis) turbines and electric drive. Boilers: 4 Yarrow. S.H.P.: 8,000 = 15 kts. Fuel: 2,500 tons coal. Laid down Sept. 14, 1921 and completed Sept. 12, 1922. Converted from a tanker 1932–33. The first Japanese warship to have electric drive installed.

Reported to carry from 10 to 16 aircraft, former being normal complement.



1932 *Photo.*

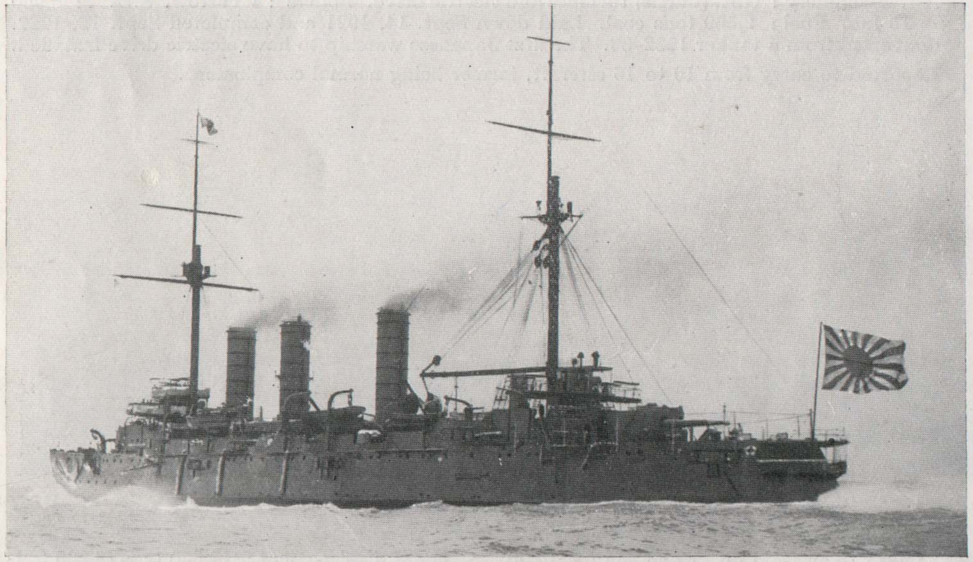
**NOTORO** (Kawasaki Co., Kobe, May 3, 1920). *Standard* displacement: 14,050 tons (8,000 tons *gross*). Complement: 155. Dimensions: 455 (*pp.*), 470¾ (*o.a.*) × 58 × 26½ feet. Guns: 2—4·7 inch, 2—3 inch AA. Reciprocating engines. H.P.: 5,850 = 12 kts. Oil Fuel: 1,000 tons. Converted from a tanker of the *Erimo* class (*vide* a later page). Laid down Nov. 24, 1919 and completed Aug. 10, 1920. Reported to carry from 8 to 16 aircraft, latter figure presumably representing maximum stowage.



YAKUMO. 1929 *Photo.*

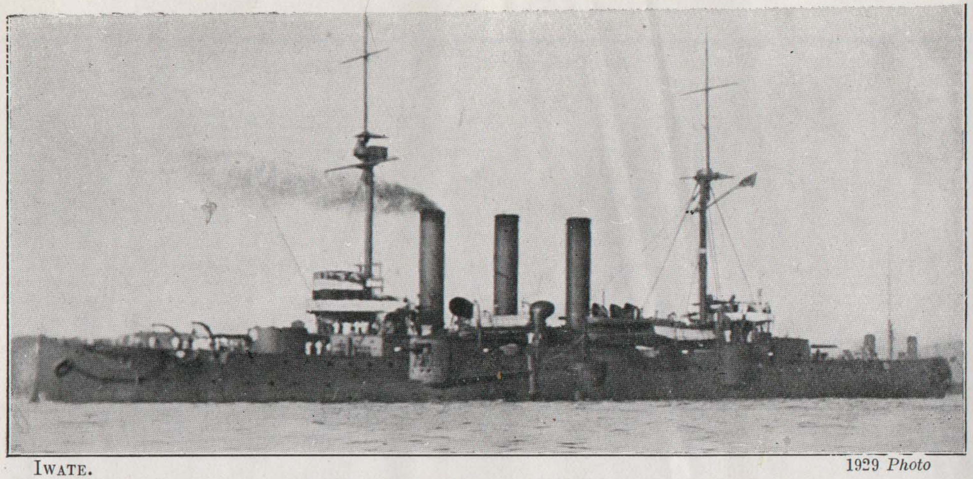
(Deckhouse since added abaft foremast).

**YAKUMO** (Vulcan Co., 1899). Displacement, 9010 tons. Complement, 698. Length (*p.p.*), 409 feet. Length *over all*, 434 feet. Beam, 64¼ feet. *Mean* draught, 23¾ feet. Guns: **4**—8 inch, 40 cal., **8**—6 inch, 40 cal., **4**—3 inch, 4. S.L. Torpedo tubes (18 inch): **2** *submerged.* Armour (Krupp): 7″ Belt (amidships), 3½″ Belt (ends), 2½″ Deck (slopes), 6″ Turrets (N.C.), 6″ Turret bases (N.C.), 5″ Lower deck side, 6″ Casemates (8), 10″ Conning tower. (Total weight, 2040 tons.) Machinery: 2 sets vertical triple expansion. 2 screws. Boilers: 6 Yarrow. Designed H.P.: 15,500 = 20½ kts. Coal: *normal*, 550 tons; *max.*, 1,200 tons. Employed as Midshipmen's Training Ship, and speed reduced to 16 kts.



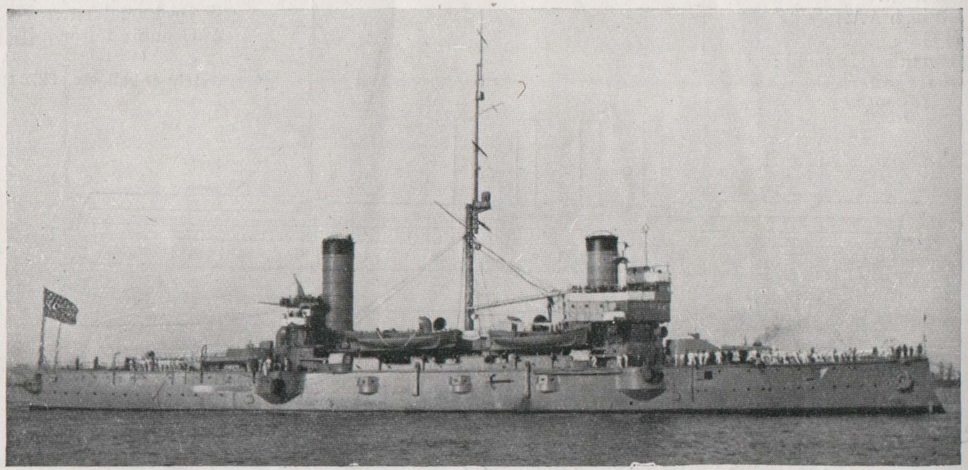
1931 *Photo, Official.*

**ADUMA** (St. Nazaire, 1899). Displacement, 8640 tons. Complement, 644. Length (*w.l.*), 430 feet. Beam, 59½ feet. *Max.* draught, 25 feet. Length (*o.a.*) 452½ feet. Guns (Armstrong): **4**—8 inch, 40 cal., **8**—6 inch, 40 cal., **4**—3 inch, **1**—3 inch AA. Torpedo tubes: **4** *submerged.* Armour (Krupp mostly): 7″ Belt (amidships), 3½″ Belt (ends), 2½″ Deck (on slopes), 6″ Turrets and bases (H.N.), 6″ Casemates (H.N.), 5″ Side above belt. (Total weight, 2000 tons.) Machinery: 2 sets vertical triple expansion. 2 screws. Boilers: 24 Belleville. Designed H.P.: 17,000 = 21 kts. Coal: *normal*, 600 tons; *maximum*, 1,200 tons. Good for about 16 kts. now.



IWATE. 1929 *Photo*

**IDUMO** (Sept. 19, 1899), and **IWATE** (March 29, 1900). Built by Armstrong. Displacement: 9,180 tons. Complement: 658. Length (*p.p.*), 400 feet; (*o.a.*) 434 feet. Beam: 68½ feet. *Max.* draught: 24¼ feet. Guns (Armstrong): **4**—8 inch, 40 cal., **8**—6 inch, 40 cal., **1**—3 inch AA., **5**—3 inch, **3** M.G., 4 S.L. Torpedo tubes: **4** *submerged.* Armour (Krupp): 7″ Belt (amidship), 3½″ Belt (ends), 2½″ Deck (slopes), 5″ Lower deck (redoubt), 6″ Turrets and bases, 6″ Casemates, 14″ Conning tower. (Total 2100 tons.) Machinery by Humphrys & Tennant: 2 sets 4-cylinder triple expansion. 2 screws. Boilers: Belleville in *Idumo;* 6 Yarrow in *Iwate.* Designed H.P.: 16,000 = 20·75 kts. Coal: *normal* 550 tons; *maximum* 1400 tons. Begun at Elswick 1898-99, and completed 1900–01. *Iwate* used as seagoing Training Ship. Present best speed about 16 kts.



KASUGA. *Photo* 1931.

**KASUGA** (October 22, 1902). Displacement: 7,080 tons. Complement: 595. Length (*waterline*): 357 feet. Beam: 61 feet 11 ins. *Maximum* draught: 25¼ feet. Guns (Armstrong): **1**—10 inch, **2**—8 inch, 45 cal., **4**—6 inch, 45 cal., **4**—3 inch, **1**—3 inch AA., **2** M.G. Torpedo tubes (18 inches): 4 *above water* (in casemates). Armour (Terni): 6″ Belt (amidships), 4½″ (ends), 1½″ Deck (on slopes), 5½″ Turrets and bases, 6″ Lower deck side and battery, 4½″ Lower deck bulkheads and Battery bulkheads, 4¾ Conning tower. 4 Searchlights. Machinery: 2 sets 3-cylinder vertical triple expansion. 2 screws. Boilers: 12 Kanpon. Designed H.P.: 13,500 = 20 kts. Coal: *normal*, 650 tons; *maximum*, 1,200 tons.

NOTE.—*Kasuga* (ex-*Rivadavia*, ex-*Mitra*) purchased from Argentina, 1904.

# 104 + 9 *(building)* Destroyers.

## Meanings of names of Destroyers. (Supplied officially to "Fighting Ships.")

N.B.—Many of these names are poetical in conception; and where adequate translation is not possible the English version should be taken merely as an approximate indication of the meaning of the names.

ASASIO *class.*

| | |
|---|---|
| *Asasio* | Morning tide. |
| *Arasio* | Rough tide. |
| *Osio* | High tide. |
| *Mitisio* | Tide running full. |
| *Asagumo* | White clouds of the morning. |
| *Yamagumo* | White clouds in the hills. |
| *Minegumo* | White clouds on the mountain peak. |
| *Natugumo* | White clouds of summer. |
| *Kasumi* | Haze (literally, "Mist of flowers"). |
| *Arare* | Hail |

SIGURE *class.*

1ST CLASS.

| | |
|---|---|
| *Yamakaze* | Wind from the hills. |
| *Suzukaze* | Cool breeze of summer. |
| *Kawakaze* | Wind on the river. |
| *Umikaze* | Sea breeze. |
| *Siratuyu* | White dew. |
| *Sigure* | Autumn shower. |
| *Murasame* | Scattered showers. |
| *Yudati* | Evening thunder shower in summer. |
| *Harusame* | Spring shower. |
| *Samidare* | Early summer rain. |

HATUHARU *class.*

| | |
|---|---|
| *Hatuharu* | First days of spring. |
| *Nenohi* | A day of New Year celebrations in old Japan. |
| *Wakaba* | Fresh verdure (young leaves). |
| *Hatusimo* | First frost of the season. |
| *Ariake* | Dawn (still the moon remains in the sky). |
| *Yugure* | Evening. |

HUBUKI *class.*

| | |
|---|---|
| *Hubuki* | Blizzard (snowstorm). |
| *Sirayuki* | White snow. |
| *Hatuyuki* | First snow of the season. |
| *Murakumo* | Cloud clusters. |
| *Sinonome* | Dawn. |
| *Usugumo* | Fleecy clouds. |
| *Sirakumo* | White clouds. |
| *Isonami* | Waves on the beach. |
| *Uranami* | Waves in the bay. |
| *Ayanami* | Waves whose beauty suggests figures woven in silk. |
| *Sikinami* | Waves chasing one another. |
| *Asagiri* | Morning mist. |
| *Yugiri* | Evening mist. |
| *Amagiri* | Mist in the sky. |
| *Sagiri* | Mist. |
| *Oboro* | Haziness diffusing moonlight. |
| *Akebono* | Daybreak. |
| *Sazanami* | Ripples. |
| *Usio* | Tide. |
| *Akatuki* | Dawn. |
| *Hibiki* | Echo. |
| *Ikaduti* | Thunder. |
| *Inaduma* | Lightning. |

MUTSUKI *class.*

| | |
|---|---|
| *Mutuki* | Poetical name for January |
| *Kisaragi* | " " February |
| *Yayoi* | " " March. |
| *Uduki* | " " April. |
| *Satuki* | " " May. |
| *Minaduki* | " " June. |
| *Humiduki* | " " July. |

MUTSUKI *class—continued.*

| | |
|---|---|
| *Nagatuki* | Poetical name for September. |
| *Kikuduki* | " " " |
| *Mikaduki* | New moon. |
| *Motiduki* | Full moon. |
| *Yuduki* | Evening moon. |

KAMIKAZE *and* MINEKAZE *classes.*

| | |
|---|---|
| *Kamikaze* | Divine wind. |
| *Asakaze* | Morning breeze. |
| *Harukaze* | Spring breeze. |
| *Matukaze* | Wind among the pine trees. |
| *Hatakaze* | Wind which causes the flapping of a flag. |
| *Oite* | Fair wind (i.e., favourable wind). |
| *Hayate* | Squall. |
| *Asanagi* | Morning calm. |
| *Yunagi* | Evening calm. |
| *Akikaze* | Autumn wind. |
| *Yukaze* | Evening breeze. |
| *Hokaze* | Wind on the sail. |
| *Siokaze* | Sea breeze. |
| *Tatikaze* | Wind caused by the stroke of a sword. |
| *Namikaze* | Wind on the waves. |
| *Numakaze* | Wind in the marsh. |
| *Nokaze* | Wind in the field. |
| *Nadakaze* | Wind on the open sea. |
| *Simakaze* | Wind on the island. |
| *Sawakaze* | Wind from the swamp. |
| *Hakaze* | Wind of a bird's flight. |
| *Yakaze* | Wind of an arrow's flight. |

WAKATAKE *class.*

2ND CLASS.

| | |
|---|---|
| *Wakatake* | Young bamboo. |
| *Kuretake* | Certain variety of bamboo. |
| *Sanae* | Rice seedling. |
| *Asagao* | Morning glory. |
| *Yugao* | Bottle gourd. |
| *Huyo* | A species of rose. |
| *Karukaya* | Sage. |

KAYA *and* MOMO *classes.*

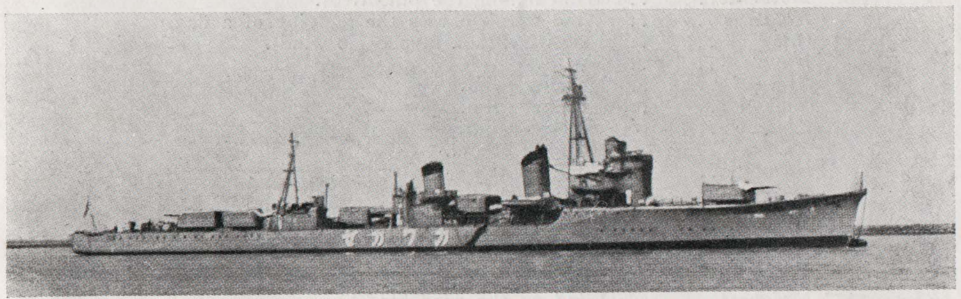
| | |
|---|---|
| *Kaya* | Tumion (strong-scented yew). |
| *Kuri* | Chestnut. |
| *Nire* | A species of elm. |
| *Nasi* | Pear. |
| *Take* | Bamboo. |
| *Aoi* | Hollyhock. |
| *Kiku* | Chrysanthemum. |
| *Hagi* | Bush-clover. |
| *Kaki* | Persimmon. |
| *Susuki* | Pampas grass. |
| *Tuga* | Japanese hemlock-spruce. |
| *Hudi* | Wistaria. |
| *Asi* | Reed. |
| *Tuta* | Japanese ivy. |
| *Hasu* | Lotus. |
| *Hisi* | Water caltrop (water-nut). |
| *Sumire* | Violet. |
| *Yomogi* | Fellon-herb. |
| *Tade* | Knotweed. |
| *Yanagi* | Willow. |
| *Momo* | Peach. |
| *Kasi* | A species of oak. |
| *Hinoki* | Japanese cypress. |

## 10 Asasio class.

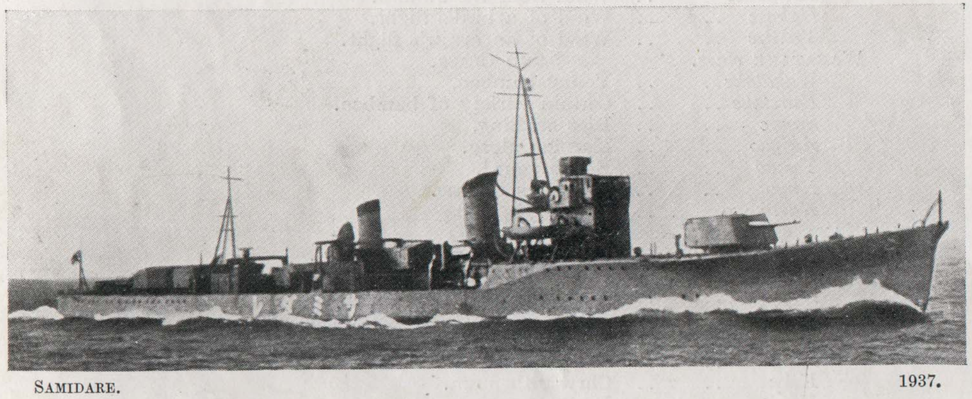
***Asasio, Arasio, Osio, Mitisio, Asagumo, Yamagumo, Minegumo, Natugumo, Kasumi, Arare.***

Displacement: 1,500 tons. Complement: 200.
Dimensions: 356 × $33\frac{1}{3}$ × 9 feet.
Guns: **6**—5 inch, **2** M.G. Torpedo Tubes: **8**—21 inch.
S.H.P.: 39,000 = 34 kts.
Boilers: 4 Kanpon. Oil fuel: About 400 tons.

## 10 Sigure class.



KAWAKAZE. 1937.

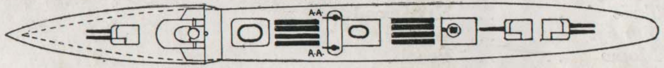


SAMIDARE. 1937.

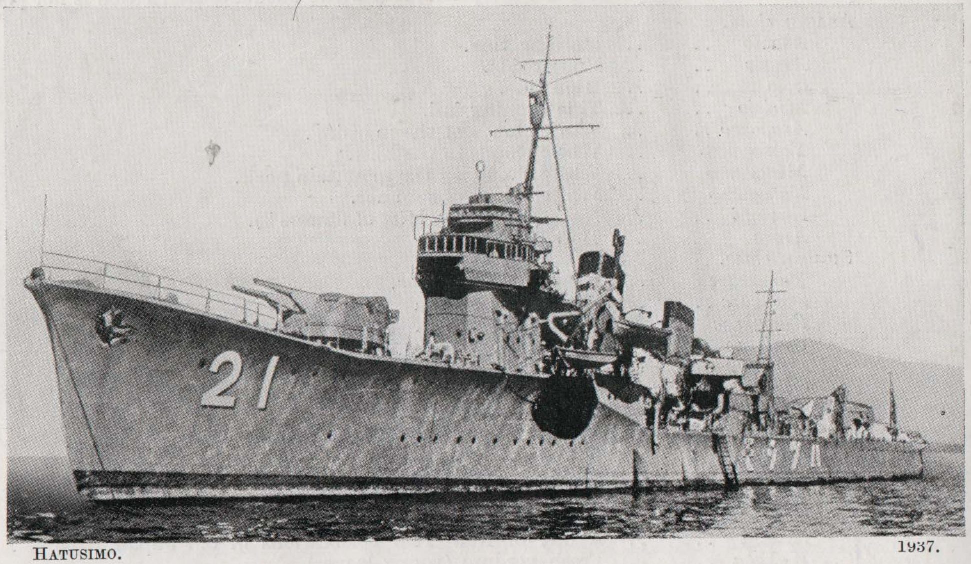
***Sigure, Siratuyu, Murasame, Yudati, Harusame, Samidare, Yamakaze, Suzukaze Kawakaze, Umikaze.***

Displacement: 1,368 tons. Complement: 200.
Dimensions: $335\frac{1}{2}$ × $31\frac{3}{4}$ × $9\frac{1}{4}$ feet (*mean*).
Guns: **5**—5 inch **2** M.G. Torpedo tubes: **8**—21 inch (quadrupled).
Machinery: Geared turbines. S.H.P.: 38,000 = 34 kts.
Boilers: 4 Kanpon. Oil fuel: About 400 tons.

*Notes.*—It is reported that the guns of these ships will have nearly 90° elevation, so they may be regarded as "dual purpose" guns.



## 6 Hatuharu class.



HATUSIMO. 1937.

***Ariake, Nenohi, Hatuharu, Hatusimo, Wakaba, Yugure.***

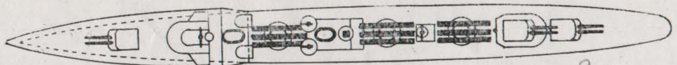
Displacement: 1,368 tons *standard*. Complement, 200.
Dimensions: $337\frac{3}{4}$ × $32\frac{1}{2}$ × $8\frac{3}{4}$ feet (*mean* draught).
Guns: **5**—5 inch, **2** M.G. Torpedo tubes: **6**—21 inch.
Machinery: Geared turbines. S.H.P. 37,000 = 34 kts.
Boilers: 4 Kanpon. Oil fuel: About 400 tons.

*Notes.*—As the result of the capsizing of the torpedo boat *Tomoduru*, the design of these destroyers was modified, the number of torpedo tubes being reduced and forward guns paired. A high percentage of electric welding was used.

(Plan as *Sigure* class, but 6 T.T. in triple mounts).

| *Name* | *Builder* | *Laid down* | *Launch* | *Completed* |
|---|---|---|---|---|
| *Hatuharu* | Saseho | May 14, 1931 | Feb. 27, 1933 | Sept. 30, 1933 |
| *Nenohi* | Uraga | Dec. 15, 1931 | Dec. 22, 1932 | Sept. 30, 1933 |
| *Wakaba* | Saseho | Dec. 12, 1931 | Mar. 18, 1934 | Oct. 31, 1934 |
| *Hatusimo* | Uraga | Jan. 31, 1933 | Nov. 4, 1933 | Sept. 27, 1934 |
| *Ariake* | Kawasaki | Jan. 14, 1933 | Sept. 23, 1934 | Mar. 25, 1935 |
| *Yugure* | Maiduru | April 9, 1933 | May 6, 1934 | Mar. 30, 1935 |
| *Siratuyu* | Saseho | Nov. 14, 1933 | April 5, 1935 | Aug. 20, 1936 |
| *Sigure* | Uraga | Dec. 9, 1933 | May 18, 1935 | Sept. 7, 1936 |
| *Murasame* | Hudinagata | Feb. 1, 1934 | June 20, 1935 | Jan. 8, 1937 |
| *Yudati* | Saseho | Oct. 16, 1934 | June 21, 1936 | Jan. 7, 1937 |
| *Harusame* | Maiduru | Feb. 3, 1935 | Sept. 21, 1935 | , 1937 |
| *Samidare* | Uraga | Dec. 19, 1934 | July 6, 1935 | Jan. 29, 1937 |
| *Yamakaze* | Uraga | May 25, 1935 | Feb. 21, 1936 | July 30, 1937 |
| *Suzukaze* | Uraga | July 9, 1935 | Mar. 11, 1937 | July 30, 1937 |
| *Kawakaze* | Hudinagata | April 25, 1935 | Nov. 1, 1936 | , 1937 |
| *Umikaze* | Maiduru | May 4, 1935 | Nov. 27, 1936 | May 31, 1937 |
| *Asasio* | Saseho | Sept. 7, 1935 | Dec. , 1936 | , 1937 |
| *Arasio* | Kawasaki | Oct. 1, 1935 | May 26, 1937 | |
| *Osio* | Maiduru | Aug. 15, 1935 | April 19, 1937 | |
| *Mitisio* | Hudinagata | Nov. 5, 1935 | Mar. 15, 1937 | |
| *Asagumo* | Kawasaki | , 1936 | Nov. 5, 1937 | |
| *Yamagumo* | Hudinagata | , 1936 | July 24, 1937 | |
| *Minegumo* | Maiduru | May 4, 1935 | Nov. 4, 1937 | |
| *Natugumo* | Saseho | July 1, 1936 | May 26, 1937 | |
| *Kasumi* | Uraga | Dec. 1, 1936 | Nov. 18, 1937 | |
| *Arare* | Maiduru | Mar. 5, 1937 | | |

# 23 Hubuki Class.



2

3

1→

**Hubuki**
**Sirayuki**
**Hatuyuki**
**Murakumo**

**Uranami**
**Sinonome**
**Usugumo**
**Sirakumo**
**Isonami**

**Ayanami**
**Asagiri**
**Amagiri**
**Sagiri**
**Sikinami**

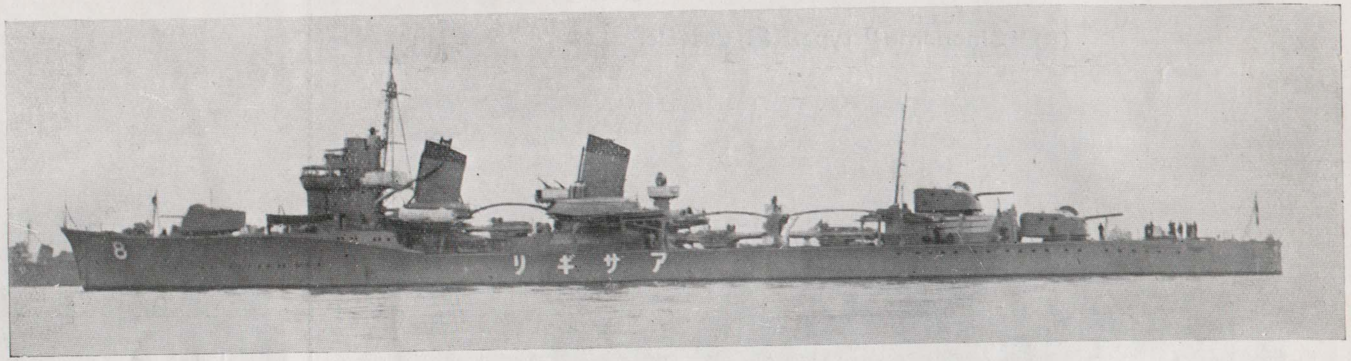
**Yugiri**
**Usio**
**Oboro**
**Akebono**
**Sazanami**

**Akatuki**
**Hibiki**
**Ikaduti**
**Inaduma**

Authorised under 1926 and subsequent sections of the Fleet Replenishment Law 1700 tons (1850 tons full load).

Dimensions: 371½ × 33¾ × 9¾ feet (*mean*). Armament: **6**—5·1 inch, 50 cal., **2** AA. M.G. and **9**—21 inch tubes.

Machinery: Parsons geared turbines. Boilers: Kanpon. H.P. 40,000=34 kts. Oil: 420 tons. Complement, 197.

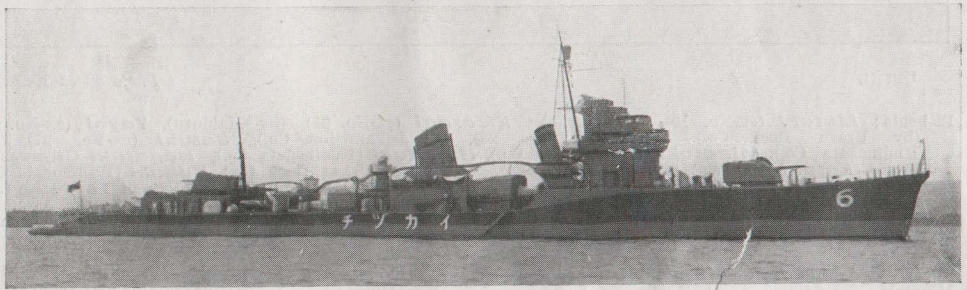


ASAGIRI.

1931 *Photo.*

| *Name* | *Builder* | *Laid dn.* | *Launch.* | *Compl.* | *Name* | *Builder* | *Laid dn.* | *Launch.* | *Compl.* |
|---|---|---|---|---|---|---|---|---|---|
| *Hubuki* | Maiduru | 19/6/26 | 15/11/27 | 10/8/28 | *Yugiri* | Maiduru | 1/4/29 | 12/5/30 | 3/12/30 |
| *Sirayuki* | Yokohama | 19/3/27 | 20/3/28 | 18/12/28 | *Amagiri* | Isikawazima | 28/11/28 | 27/2/30 | 10/11/30 |
| *Hatuyuki* | Maiduru | 12/4/27 | 29/9/27 | 30/3/28 | *Sagiri* | Uraga | 28/3/29 | 23/12/29 | 31/1/31 |
| *Murakumo* | Hudinagata | 25/4/27 | 27/9/27 | 10/5/28 | *Oboro* | Saseho | 29/11/29 | 8/11/30 | 31/10/31 |
| *Sinonome* | Saseho | 12/8/26 | 26/11/27 | 25/7/28 | *Akebono* | Hudinagata | 25/10/29 | 7/11/30 | 31/7/31 |
| *Usugumo* | Isikawazima | 21/10/26 | 26/12/27 | 26/7/28 | *Sazanami* | Maiduru | 21/2/30 | 6/6/31 | 19/5/32 |
| *Sirakumo* | Hudinagata | 27/10/26 | 27/12/27 | 28/7/28 | *Usio* | Uraga | 24/12/29 | 17/11/30 | 14/11/31 |
| *Isonami* | Uraga | 18/10/26 | 24/11/27 | 30/6/28 | *Akatuki* | Saseho | 17/2/30 | 7/5/32 | 30/11/32 |
| *Uranami* | Saseho | 28/4/27 | 29/11/28 | 30/6/29 | *Hibiki* | Maiduru | 21/2/30 | 16/6/32 | 31/3/33 |
| *Ayanami* | Hudinagata | 20/1/28 | 5/10/29 | 30/4/30 | *Ikaduti* | Uraga | 7/3/30 | 22/10/31 | 15/8/32 |
| *Sikinami* | Maiduru | 6/7/28 | 22/6/29 | 24/12/29 | *Inaduma* | Hudinagata | 17/3/30 | 25/2/32 | 15/11/32 |
| *Asagiri* | Saseho | 12/12/28 | 18/11/29 | 30/6/30 | | | | | |

## (A) "Hibiki" type. 4 Vessels.

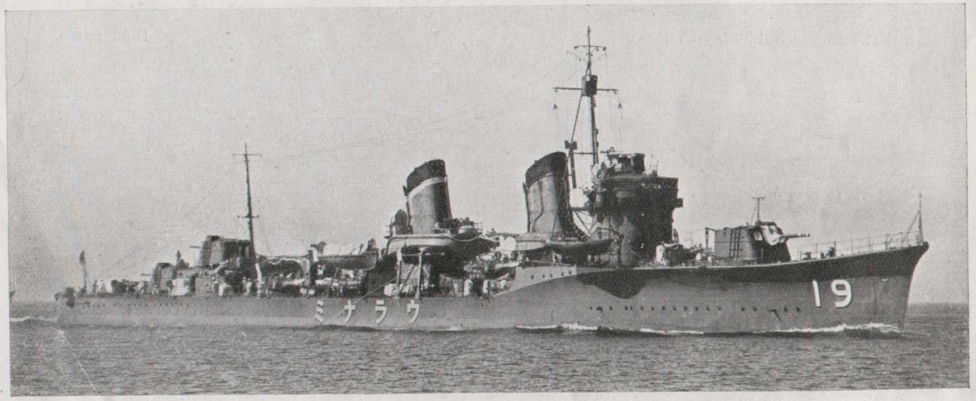


IKADUTI.

1933 *Photo.*

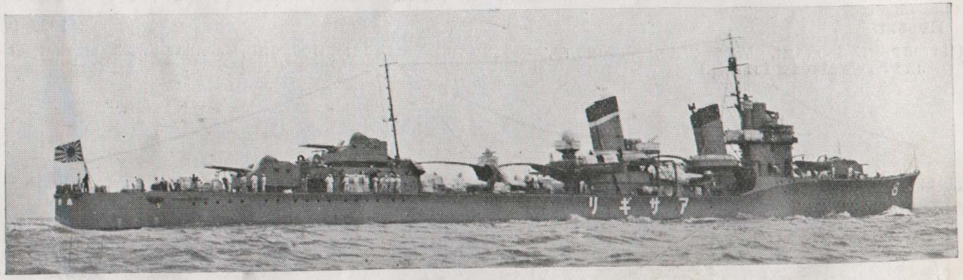
(AKATUKI, HIBIKI, INADUMA, similar with small fore funnel, high bridge, and big flat-sided shields to Torpedo Tubes.)
*Hibiki* is the first rivetless ship in the Japanese Navy. MIYUKI (built by Uraga Co.) lost by collision in 1934.

## (B) "Amagiri" type. 11 Vessels.



URANAMI.

1933 *Photo.*



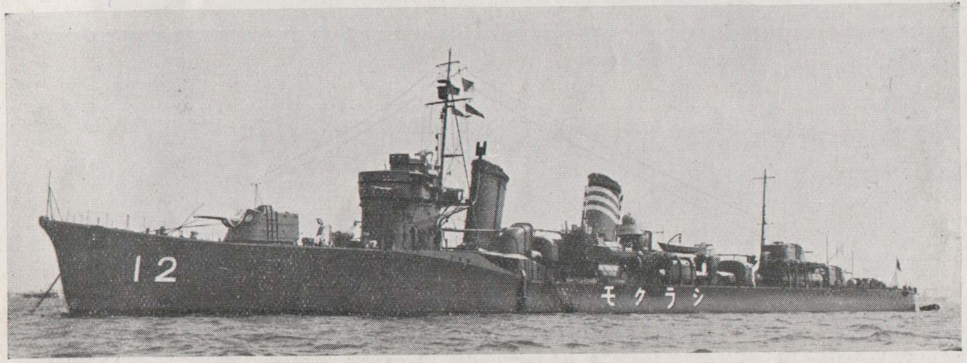
ASAGIRI.

1933 *Photo.*

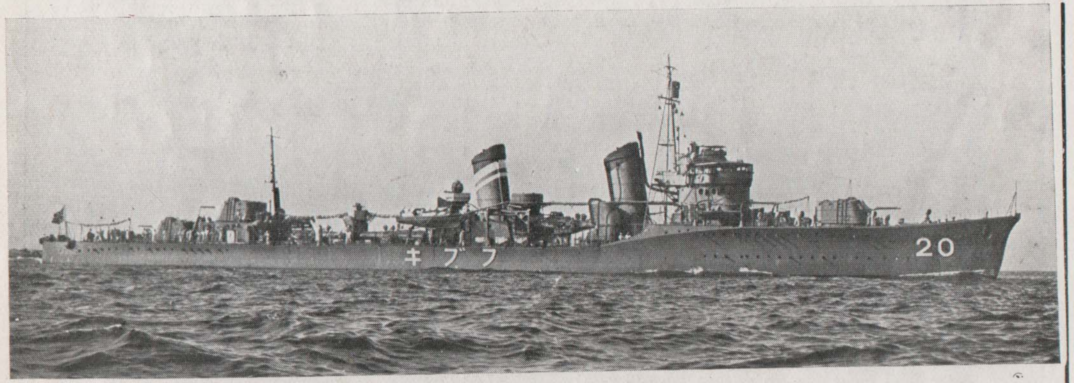
(AMAGIRI, AKEBONO, AYANAMI, OBORO, SAGIRI, SAZANAMI, USIO, YUGIRI similar, with collar ventilators around funnels, and bridge control tower level with funnel caps, which in all this class (23) are anti-flare fittings.)

## Hubuki Class—*continued.*

### (C) "Sinonome" type. 8 Vessels.

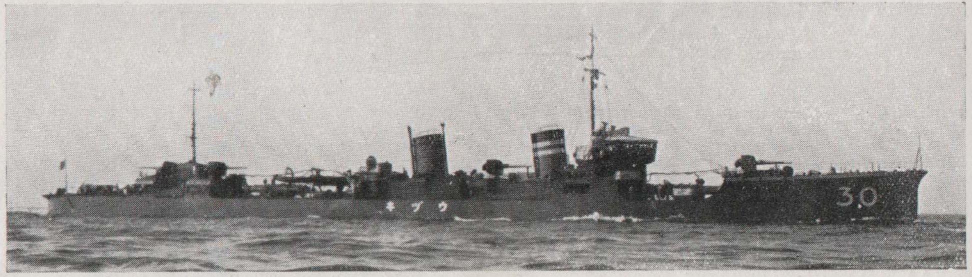


SIRAKUMO (note shields to Tubes). 1932 *Photo.*

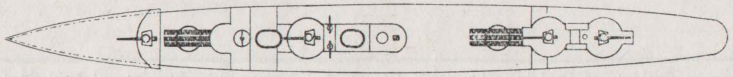


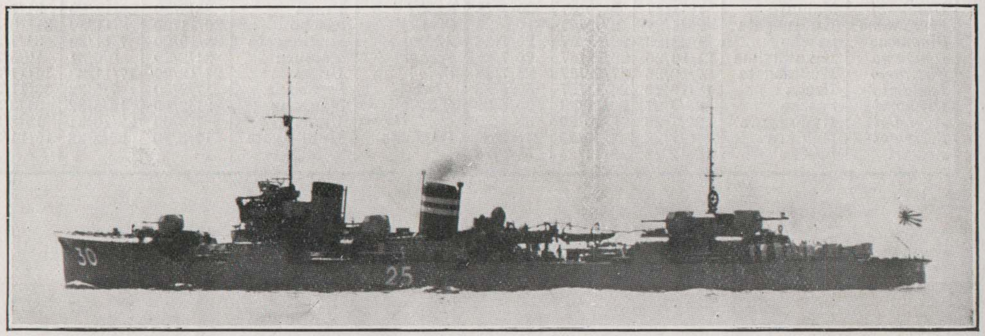
HUBUKI. 1933 *Photo.*
(HATSUYUKI ISONAMI, MURAKUMO, SINONOME, SIRAKUMO, SIRAYUKI, USUGUMO, similar with smaller bridge and cowls abreast funnels.)

## 12 Mutuki Class.



UDUKI. *Photo* 1933.



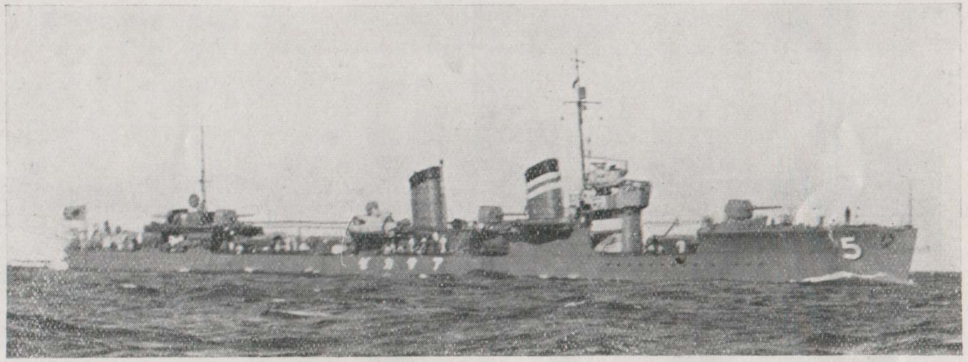


UDUKI. *Photo added* 1927.

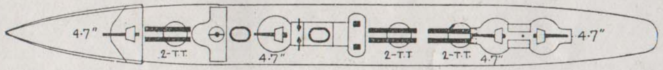
12 boats; **Mutuki** (ex-No. 19), (by Saseho), **Kisaragi** (ex-No. 21), (by Maiduru), **Yayoi** (ex-No. 23), (by Uraga Dock Co.), **Uduki** (ex-No. 25), (by Isikawazima Co.), **Satuki** (ex-No. 27), (by Hudinagata Co.), **Minatuki** (Uraga Dock Co.), **Humituki** (Hudinagata Co.), **Nagatuki** (Isikawazima Co.), **Kikutuki** (Maiduru), **Mikaduki** (Saseho), **Motiduki** (Uraga Dock Co.), **Yuduki** (Hudinagata Co.), (ex-Nos. 28–34. Enlarged editions of *Kamikaze*. Built under 1923, 1924 and 1925 sections of Navy Law. 1,315 tons. Dimensions: 320 (*p.p.*) × 30 × $9\frac{1}{6}$ feet (*max.* draught). Armament: **4**—4·7 inch, 50 cal., **2** AA. M.G. and **6**—21 inch tubes (in triple deck mountings). 3 S.L. Machinery: Parsons 4-shaft turbines, 4 Kanpon boilers. Designed H.P.: 38,500 = 34 kts. Oil: 350 tons. Endurance: 4,000 miles at 15 kts. Complement, 150.

| *Name.* | *Begun.* | *Launch.* | *Comp.* | *Name.* | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|---|---|---|---|
| *Minatuki* | 24/3/25 | 25/5/26 | 22/3/27 | *Mutuki* | 21/5/24 | 23/7/25 | 25/3/26 |
| *Humituki* | 20/10/24 | 16/2/26 | 3/7/26 | *Kisaragi* | 3/6/24 | 5/6/25 | 21/12/25 |
| *Nagatuki* | 16/4/25 | 6/10/26 | 30/4/27 | *Yayoi* | 11/1/24 | 11/7/25 | 28/8/26 |
| *Kikutuki* | 15/6/25 | 15/5/26 | 20/11/26 | *Uduki* | 11/1/24 | 15/10/25 | 14/9/26 |
| *Mikaduki* | 21/8/25 | 12/7/26 | 7/5/27 | *Satuki* | 1/12/24 | 25/3/25 | 15/11/25 |
| *Motiduki* | 23/3/26 | 28/4/27 | 31/10/27 | | | | |
| *Yuduki* | 27/11/26 | 4/3/27 | 25/7/27 | | | | |

## 9 Kamikaze Class.



Asakaze. 1934 *Photo.*



9 *boats:* **Kamikaze** (ex-No. 1) and **Asakaze** (ex-No. 3) (both by Mitubisi Z.K.), **Harukaze** (ex-No. 5), **Matukaze** (ex-No. 7), **Hatakaze** (ex-No. 9), (all three by Maiduru D.Y.), **Oite** (ex-No. 11), (by Uraga Dock Co.), **Hayate** (ex-No. 13), (by Isikawazima Co.), **Asanagi** (ex-No. 15), (by Hudinagata Co.), **Yunagi** (ex-No. 17), (by Saseho).

Built under 1921 and 1922 Sections of Navy Law. 1270 tons. Dimensions: 320 (*p.p.*) × 30 × $9\frac{7}{12}$ feet (*max. draught*). Armament: **4**—4·7 inch, 50 cal., **2** AA. M.G. and **6**—21 inch torpedo tubes. 2 S.L. Machinery: Parsons 4-shaft turbines. 4 Kanpon boilers. Designed H.P. 38,500 = 34 kts. Oil: 350 tons. Endurance: 4000 miles at 15 kts. Complement, 148.

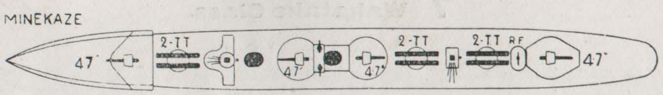
| *Name.* | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|
| *Kamikaze* | 15/12/21 | 25/9/22 | 28/12/22 |
| *Asakaze* | 16/2/22 | 8/12/22 | 16/6/23 |
| *Harukaze* | 16/5/22 | 18/12/22 | 31/5/23 |
| *Matukaze* | 2/12/22 | 30/10/23 | 5/4/24 |
| *Hatakaze* | 3/7/23 | 15/3/24 | 30/8/24 |
| *Oite* | 16/3/23 | 27/11/24 | 30/10/25 |

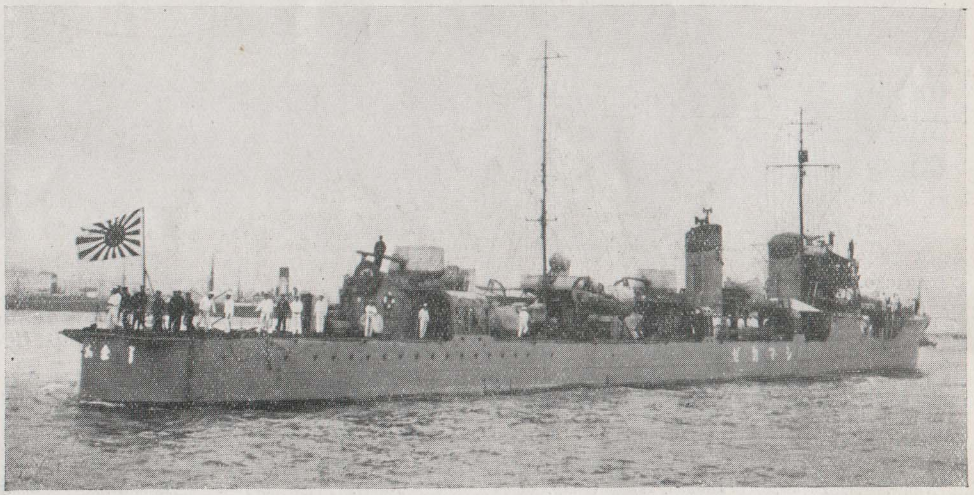
| *Name.* | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|
| *Hayate* | 11/11/22 | 23/3/25 | 21/12/25 |
| *Asanagi* | 5/3/23 | 21/4/24 | 29/12/24 |
| *Yunagi* | 17/9/23 | 23/4/24 | 24/4/25 |

| *Name.* | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|
| *Akikaze* | 7/6/20 | 14/12/20 | 1/4/21 |
| *Yukaze* | 14/12/20 | 28/ 5/21 | 24/8/21 |
| *Namikaze* | 7/11/21 | 24/6/22 | 11/11/22 |
| *Numakaze* | 10/8/21 | 25/2/22 | 24/7/22 |
| *Nadakaze* | 9/1/20 | 26/6/20 | 30/9/21 |
| *Simakaze* | 5/9/19 | 31/3/20 | 15/11/20 |

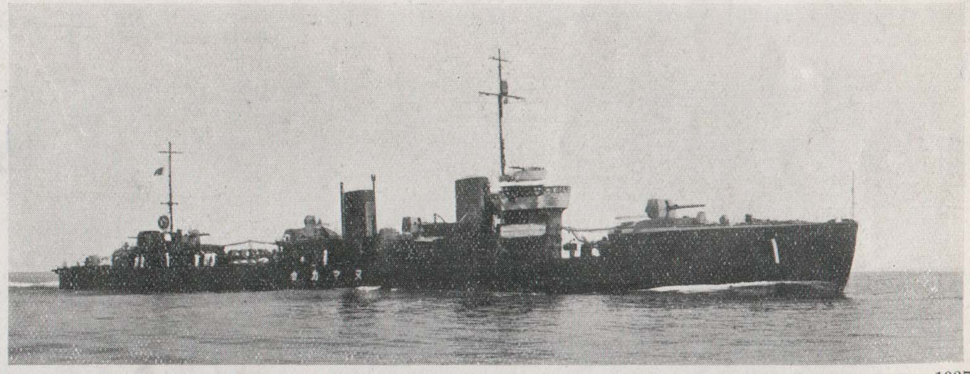
| *Name.* | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|
| *Hokaze* | 30/11/20 | 12/7/21 | 22/12/21 |
| *Siokaze* | 15/5/20 | 22/10/20 | 29/7/21 |
| *Tatikaze* | 18/8/20 | 31/3/21 | 5/12/21 |
| *Nokaze* | 16/4/21 | 1/10/21 | 31/3/22 |
| *Sawakaze* | 7/1/18 | 7/1/19 | 16/3/20 |
| *Hakaze* | 11/11/18 | 21/6/20 | 16/9/20 |
| *Yakaze* | 15/8/18 | 10/4/20 | 19/7/20 |

## 13 Akikaze class.





Simakaze (Observe funnel tops.) 1934 *Photo.*

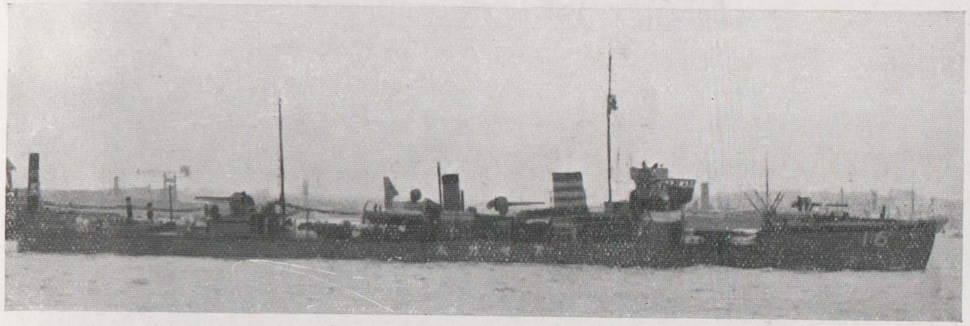


Numakaze (Namikaze and Nokaze similar). 1937.

13 *Minekaze* class: **Akikaze** and **Yukaze** (both by Mitubisi Z.K., Nagasaki); **Hokaze, Siokaze, Tatikaze, Namikaze, Numakaze, Nokaze, Nadakaze, Simakaze.** All by Maiduru. **Sawakaze, Hakaze** and **Yakaze** all built by Mitubisi Co., at Nagasaki. Displacement: 1215 tons. Dimensions: 320 (*p.p.*), $336\frac{1}{2}$ (*o.a.*) × $29\frac{1}{4}$ × $9\frac{1}{2}$ feet (*mean* draught). Armament: **4**—4·7 inch, 45 cal., **2** M.G. (AA.), and **6**—21 inch torpedo tubes. **2**—30 inch searchlights in Maiduru built vessels: only **1** in others. Designed S.H.P.: 38,500 = 34 kts. Machinery: Parsons 4 shaft turbines and 4 Kanpon boilers. Oil: 315 tons. Complement: *Sawakaze*, 145, others 148. *Sawakaze* belongs to the 1917 Programme; *Nadakaze, Simakaze, Hakaze* and *Yakaze* to the 1918 Programme. Remainder authorised under 1919 and 1920 sections of the 1918–24 Navy Law.

## 2nd Class Destroyers. (1000 to 600 tons).

### 7 Wakatake Class.



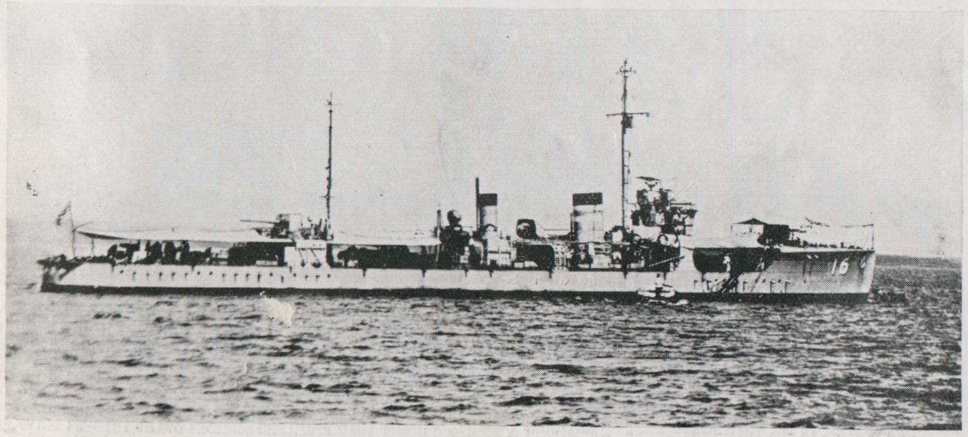
ASAGAO. 1931 *Photo.*

7 *Wakatake class:* **Wakatake** (ex-No. 2) and **Kuretake** (ex-No. 4), (both by Kawasaki Co., Kobe); **Sanaye** (ex-No. 6 by Uraga Dock Co.); **Asagao** (ex-No. 10) and **Yugao** (ex-No. 12), (both by Isikawazima Co.); **Huyo** (ex-No. 16) and **Karukaya** (ex-No. 18), (both by Hudinagata Co.).

Built under 1921 Naval Programme. Particulars and general design are the same as in *Kaya* and *Momo* classes, following, with the exception of displacement, which is increased to 820 tons, and dimensions, 275 × 26½ × 8¼ feet. All originally bore numbers only. Names were conferred on August 1st, 1928. *Sawarabi* lost off Formosa, Dec. 5, 1932.

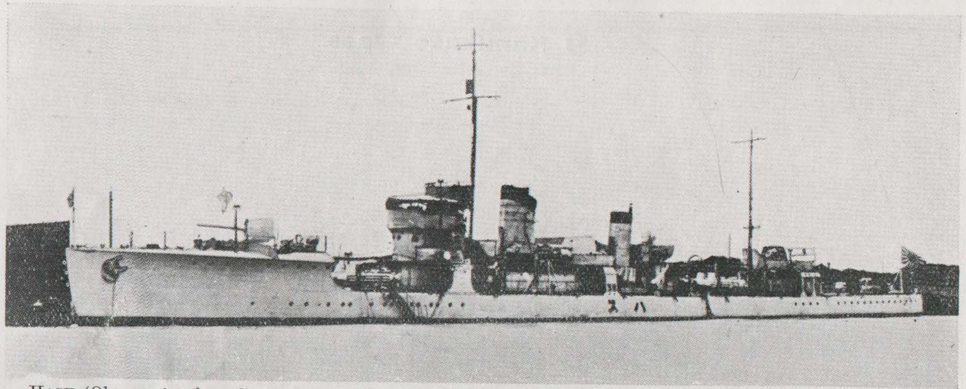
| *Name.* | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|
| *Wakatake* | 13/12/21 | 24/7/22 | 30/ 9/22 |
| *Kuretake* | 15/3/22 | 21/10/22 | 21/12/22 |
| *Sanaye* | 5/4/22 | 15/2/23 | 5/11/23 |
| *Asagao* | 19/3/22 | 4/11/22 | 4/11/23 |

| *Name.* | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|
| *Yugao* | 15/5/22 | 14/4/23 | 31/5/24 |
| *Huyo* | 16/2/22 | 23/9/22 | 16/3/23 |
| *Karukaya* | 16/5/22 | 19/3/23 | 20/8/23 |

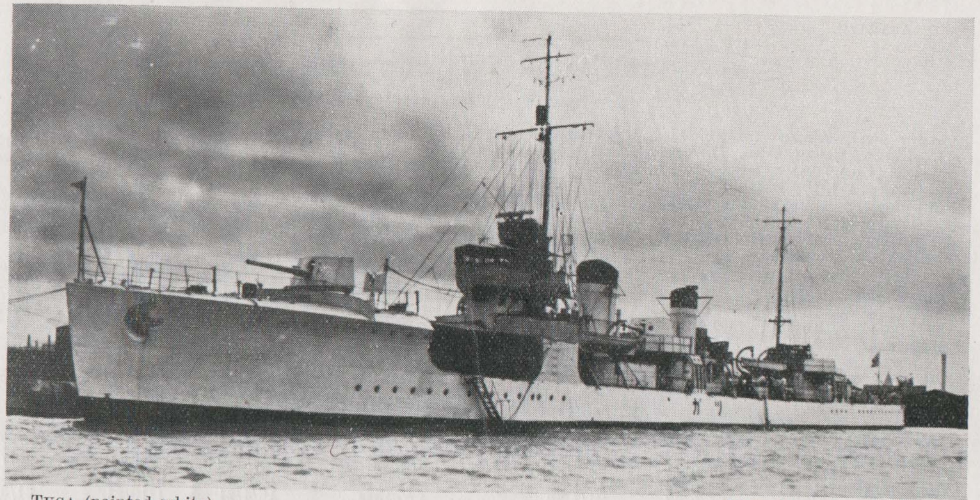


KARUKAYA. 1937.

## 19 Kaya Class (12 Kaya + 7 Asi).



HASU (Observe forefunnel). 1936, *Official, added* 1937.



TUGA (painted white). 1936, *Official, added* 1937.

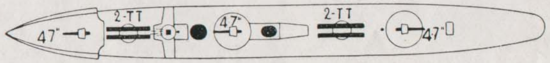
12 *Kaya* class: **Kaya** (Yokosuka), **Kuri** and **Nire** (Kure), **Nasi, Take, Aoi** and **Kiku** (Kawasaki Co., Kobé), **Hagi** and **Kaki** (Uraga Co.), **Susuki** and **Tuga** (Isikawazima Co.), **Hudi** (Hudinagata Co., Osaka). 770 tons. Dimensions: 275 (*p.p.*) × 26 × 8 feet. Armament: **3**—4.7 inch, 45 cal., **2** M.G. (AA.). **4**—21 inch torpedo tubes in two twin-deck mountings. **1**—30 inch searchlight. Designed S.H.P.: 17,500 = 31·5 kts., *except Hagi, Susuki, Hudi,* 21,500 = 31·5 kts. Machinery: Parsons direct drive turbines. 3 Kanpon boilers. 2 shafts. Oil: 275 tons. Endurance: 3,000 miles at 15 kts. Complement, 110. Built under 1918–19 Programme.

7 *Asi* class: **Asi** and **Tuta** (Kawasaki Co.), **Hasu** and **Hisi** (Uraga Dock Co.), **Sumire** and **Yomogi** (Isikawazima Co.), **Tade** (Hudinagata Co., Osaka). All details as *Kaya* class, but 2 searchlights carried and S.H.P. 21,500 = 31.5 kts. Begun under 1920 Naval Programme.

*Note.—Warabi,* of this class, lost by collision, 24th Aug., 1927.

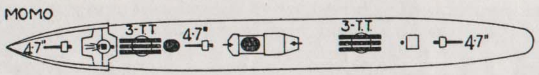
*Momi* scrapped, 1932.

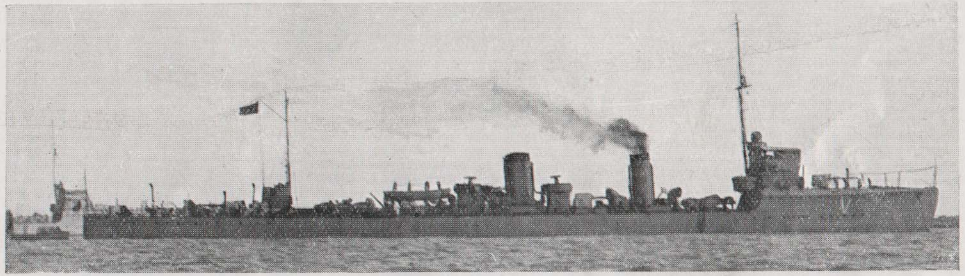
(For details of launch dates, etc., see following column.)



## Destroyers—*continued.*

### 4 Momo Class.





YANAGI. 1920 *Photo, Seward, Weymouth.*

4 *Momo* class: **Yanagi** (1917) and **Momo** (1916), both built at Saseho; **Kasi** (1916) and **Hioki** (1916), both built at Maiduru. 755 tons. Dimensions: 275 (*o.a.*) × 25 × 7¾ feet. Armament: **3**—4·7 inch, **2** M.G., **1** small AA. gun, and **6**—18 inch tubes in two triple mountings. One searchlight. Machinery: 3 sets Curtis turbines and 4 Kanpon boilers. Designed H.P.: 16,000 = 31·5 kts. Fuel: 92 tons coal + 212 tons oil. Complement, 109. Built under the 1915 Naval Programme. *Enoki* and *Nara* of this class converted into Mine Sweepers, 1930. *Maki, Keyaki, Kuwa, Tubaki,* scrapped. First two have H.P. 17,500 = 31·5 kts.

[illegible]-20 Hai Wei

| *Name.* | *Begun.* | *Launch.* | *Comp.* | *Name.* | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|---|---|---|---|
| *Kaya* | 13/12/18 | 10/6/19 | 28/3/20 | *Kiku* | 20/1/20 | 13/10/20 | 31/12/20 |
| *Kuri* | 5/12/19 | 19/3/20 | 30/4/20 | *Hagi* | 28/2/20 | 29/10/20 | 20/4/21 |
| *Nire* | 5/9/19 | 22/12/19 | 31/3/20 | *Kaki* | 27/2/19 | 20/10/19 | 2/8/20 |
| *Nasi* | 2/12/18 | 26/8/19 | 10/12/19 | *Susuki* | 3/5/20 | 21/2/21 | 25/5/21 |
| *Take* | 2/12/18 | 26/8/19 | 25/12/19 | *Tuga* | 5/3/19 | 17/4/20 | 20/7/20 |
| *Aoi* | 1/4/20 | 9/11/20 | 31/12/20 | *Hudi* | 6/12/19 | 27/11/20 | 31/5/21 |
| *Asi* | 15/11/20 | 3/9/21 | 29/10/21 | *Sumire* | 24/11/20 | 14/12/21 | 31/3/23 |
| *Tuta* | 16/10/20 | 9/5/21 | 30/6/21 | *Yomogi* | 26/2/21 | 14/3/22 | 19/8/22 |
| *Hasu* | 2/3/21 | 30/5/21 | 31/7/22 | *Tade* | 30/12/20 | 15/3/22 | 31/7/22 |
| *Hisi* | 10/11/20 | 9/5/21 | 23/3/22 | | | | |

## 12 + *8* (Building) Torpedo Boats.

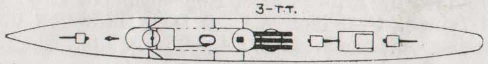
16 *Otori* class: **Otori, Hiyodori, Hayabusa, Kasasagi, Kizi, Kari, Sagi, Hato,** and 8 others not yet named, laid down 1937–38. (Appearance almost identical with *Tidori* class, in following column).

Displacement: 595 tons *standard*. Dimensions: 263 × 26 × 6¾ feet. Guns: **3**—4·7 inch, **1** M.G. Torpedo tubes; **3**—21 inch. 1 S.L. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 9,000 = 28 kts. Boilers: Kanpon Oil fuel.

*Notes.*—Authorised by 2nd Fleet Replenishment Law, 1933. Design modified in consequence of capsizing of *Tomoduru*.

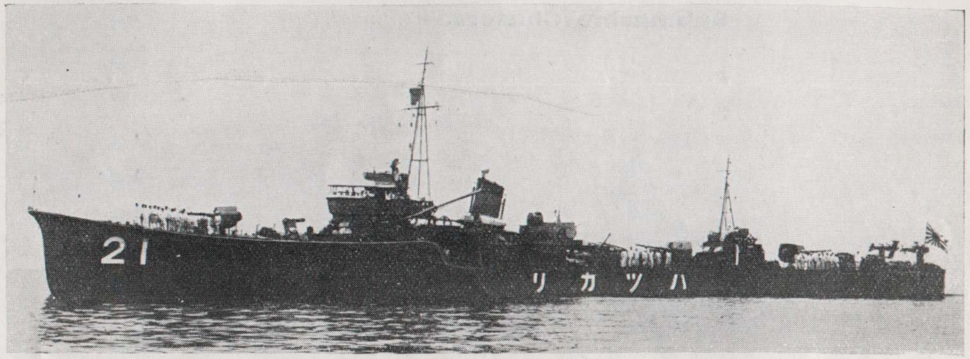
MEANINGS OF NAMES OF TORPEDO BOATS.

| | | | |
|---|---|---|---|
| *Tidori* | Dotterel Plover. | *Hayabusa* | Peregrine falcon. |
| *Manaduru* | White-naped crane. | *Kasasagi* | Magpie. |
| *Tomoduru* | Flight of cranes. | *Kizi* | Pheasant. |
| *Hatukari* | First wild goose of the season. | *Kari* | Wild goose. |
| *Otori* | Japanese stork. | *Sagi* | Snowy Heron. |
| *Hiyodori* | Brown-eared bulbul. | *Hato* | Dove. |



TIDORI and OTORI classes.

## Torpedo Boats—*continued.*



HATUKARI 1935.

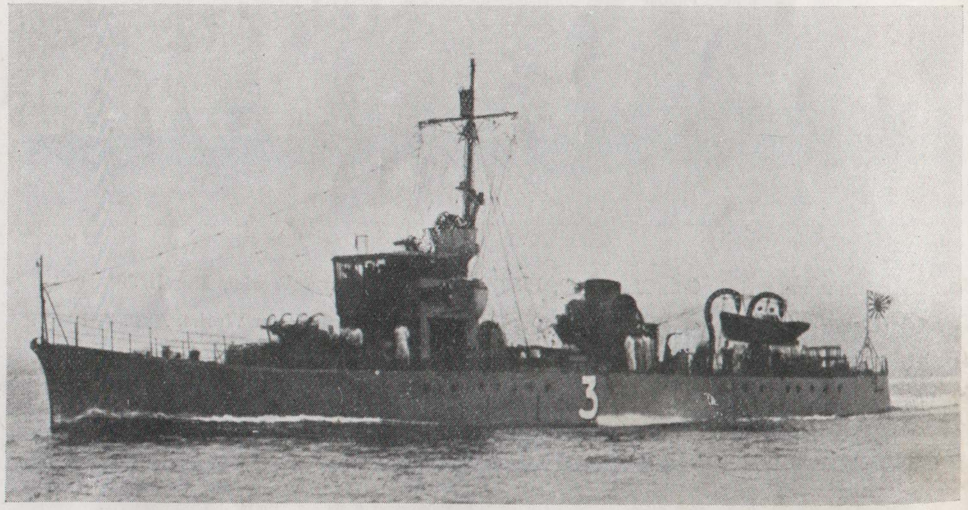
4 *Tidori* class: **Tidori, Tomoduru, Hatukari, Manaduru.** Displacement: 527 tons. Dimensions: 254 × 24 × 6 feet. Guns: **3**—4·7 inch, **1** M.G. Tubes: **2**—21 inch. Machinery: Parsons geared turbines. H.P.: 7,000 = 26 kts.

*Notes.*—Built under 1931 Programme. After the capsizing of *Tomoduru* in March, 1934, these vessels were altered extensively to improve stability, armaments being reduced to lessen top weight.

| *Name.* | *Builders.* | *Begun.* | *Launch.* | *Completed.* |
|---|---|---|---|---|
| *Tidori* | Maiduru | 13/10/31 | 1/4/33 | 20/11/33 |
| *Manaduru* | Hudinagata | 22/12/31 | 11/7/33 | 31/11/34 |
| *Tomoduru* | Maiduru | 11/11/32 | 1/10/33 | 24/2/34 |
| *Hatukari* | Hudinagata | 6/4/33 | 19/12/33 | 15/7/34 |
| *Otori* | Maiduru | 8/11/34 | 25/4/35 | 1/8/36 |
| *Hiyodori* | Isikawazima | 26/11/34 | 25/10/35 | |
| *Hayabusa* | Yokohama Dock | 19/12/34 | 28/10/35 | |
| *Kasasagi* | Osaka Iron Wks. | 4/3/35 | 25/11/35 | |
| *Kizi* | Mitui (Tama) | 24/10/35 | 26/1/37 | |
| *Kari* | Yokohama Dock | 11/5/36 | 20/1/37 | |
| *Sagi* | Harima | 20/5/36 | 30/1/37 | |
| *Hato* | Isikawazima | 28/5/36 | 25/1/37 | |

## Submarine Chasers.

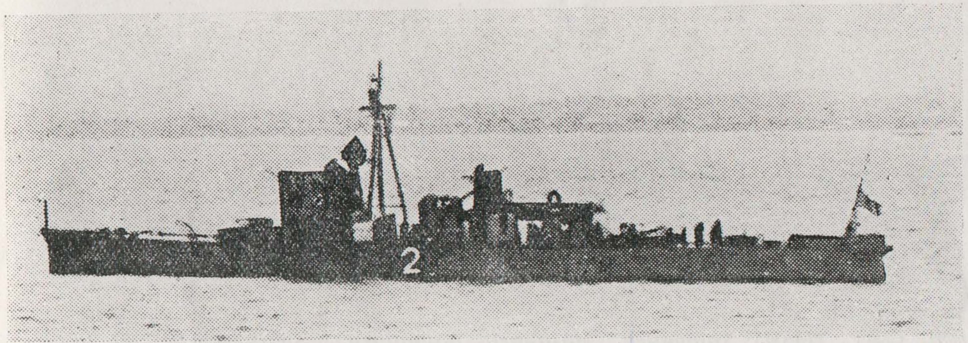
**Nos. 51, 52** (Turumi Steel Works, Aug. 25, 1937), **53** (Osaka Iron Works, building). Over 300 tons. No other particulars received.



1937.

**No. 3** (Asano Co., June 6th, 1936). Displacement: 270 tons. Dimensions: 179 × 18½ × 6½ feet. H.P.: 2,500 = 20 kts. Armed with D.C. and **4** M.G.

## Submarine Chasers.—*continued.*

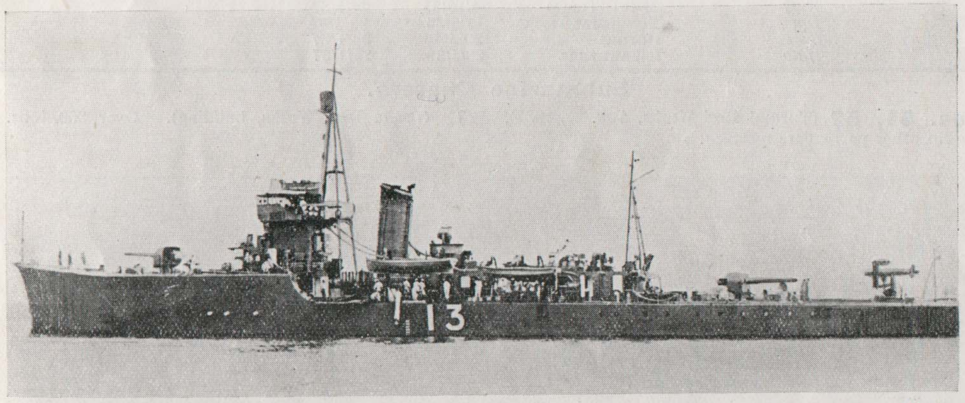


No. 2. 1935.

**No. 1** (Uraga Dock Co., Dec., 1933), **No. 2** (Isikawazima, Dec., 1933).

Displacement: 300 tons. Dimensions: 210½ × 19¾ × 5 feet. H.P. 3,400 = 24 kts. Armed with Depth Charges and 4 M.G.

## Minesweepers.



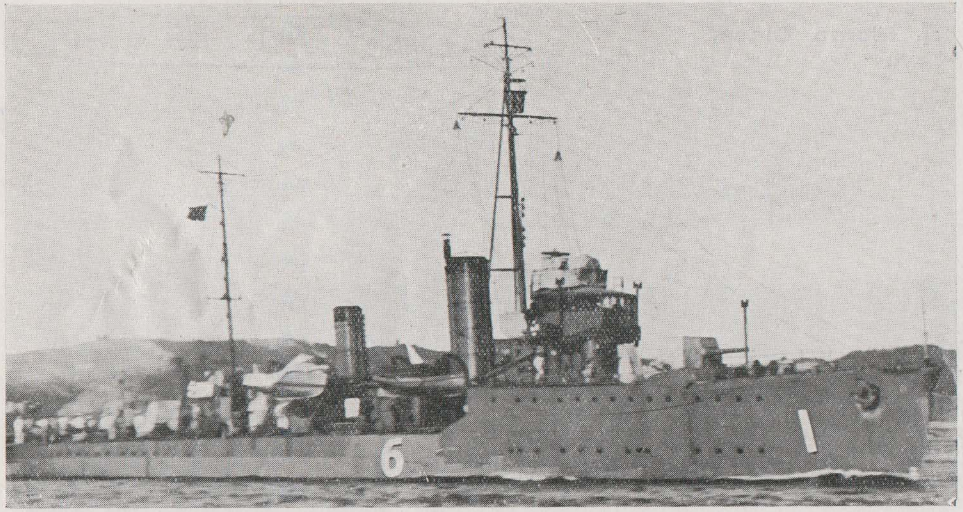
No. 13. 1935.

**No. 13** (Hudinagata S.B. Co., March 30, 1933).
**No. 14** (Osaka Iron Works, May 20, 1933).
**No. 15** (Hudinagata S.B. Co., Feb. 14, 1934).
**No. 16** (Tama Works, March 30, 1934).
**No. 17** (Osaka Iron Works, Aug. 3, 1935).
**No. 18** (Tama Works, Sept. 19, 1935).

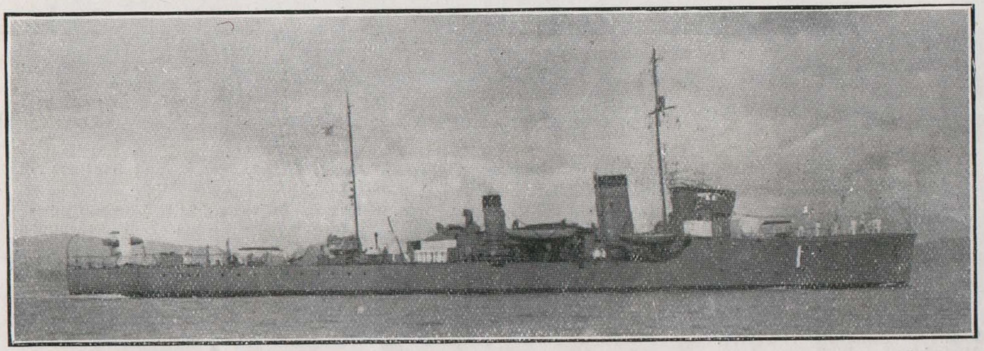
Nos. 13—16: Displacement: 492 tons. Dimensions: 232¼ × 25 × 6 feet. Nos. 17, 18: Dimensions: 218 × 25⅓ × 6½ feet.

In all: Guns: 2—4·7 inch, 2 M.G. H.P.: 3,200 = 20 kts., except Nos. 17, 18, only 19 kts.

*Notes.*—All built under First Fleet Replenishment Law of 1931.



Minesweeper No. 6. (Note tripod foremast.) 1930 *Photo.*



Minesweeper No. 1. *Photo added* 1927.

**Nos. 1** (Harima S.B. Co., March 6, 1923), **2** (Tama Works, March 17, 1923), **3** (Osaka Iron Works, March 29, 1923), **4** (Saseho, April 24, 1924), **5** (Tama Works, Oct. 30, 1928), **6** (Osaka I.W., Oct. 29, 1928). All provided by 1920–28 Fleet Replenishment Law. 615 tons. 235 × 26⅓ × 7½ feet. Guns: **2**—4·7 inch, **1**—3 inch AA., **2** D.C. throwers. Complement: 87. Triple expansion engines. 3 Kanpon boilers. H.P.: 4,000 = 20 kts.

37
25
82

## **58**+*1* (*building*) **Submarines** (*Sensuikan*).

Now divided into 4 groups, Oceangoing, Seagoing, Minelaying and Coastal. In addition, it has been reported that a number of tiny coastal submarines have been built. These may be regarded as purely experimental craft.

—(*a*) *Oceangoing*

### 3 "Improved I 5" Type.

*Photo wanted.*

1 *boat* : ***I 6*** (Kawasaki, March 31, 1934). Displacement : 1,900/2,500 tons. Dimensions : 309⅓ (*pp.*), 343½ (*o.a.*) × 29¾ × 15½ feet. Guns : **1**—5 inch, **1** M.G. Tubes : **6**—21 inch. 2 sets Diesels. H.P. : 6,000 e 17 kts . *surface. Submerged,* 9 kts.

2 *boats* : ***I 7*** (Kure, July 3, 1935), ***I 8*** (Kawasaki, July 20, 1936). Displacement : 1,950/2,600 tons. Dimensions 356¾ (*o.a.*) × 29¾ × 14½feet (*mean* draught). Guns : **2**—5·5 inch. Tubes : **6**—21 inch. 1 S.L. 2 sets Kanpon Diesels. H.P. : 6,000 = 17 kts., *surface. Submerged*, 9 kts.

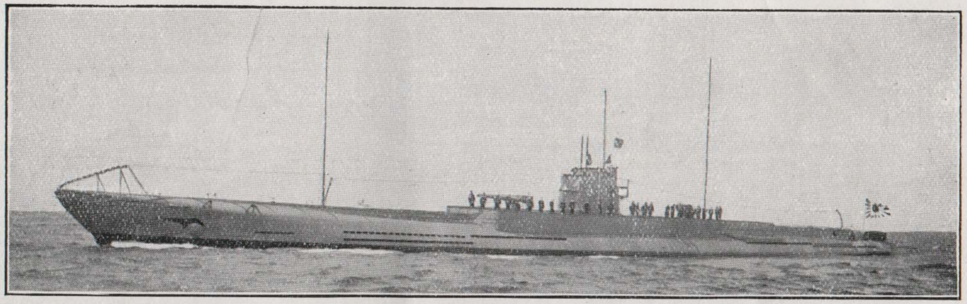
*Note.*—These 2 vessels were laid down Sept. 12 and Oct. 1, 1934, respectively. I 7 completed March 31, 1937.

### 1 Experimental Boat.

***I 5.*** (Kawasaki, June 19th, 1931). Displacement : 1,955/2,500 tons. Dimensions : 320 × 30¼ × 15¾ feet. Guns : 1—5 inch. Tubes : **6**—21 inch. Machinery : Diesels, 6,000 H.P. = 17 kts. *surface.* Motors H.P. 1,800 = 9 kts.

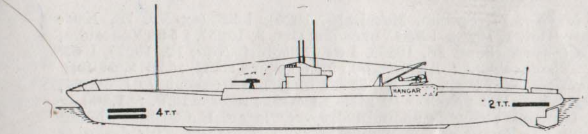
*Note.*—Differs mainly from *I* 1—4 in calibre of gun and in having a seaplane with folding wings housed in a tubular hangar astern of C.T., instead of a second gun. Laid down Oct. 30, 1929, and completed July 31, 1932.

### 4 Kawasaki Boats.

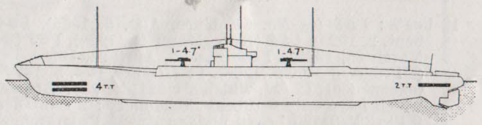


I 1. 1926 *Photo, by courtesy of Navy Department.*

4 *boats* : ***I 1*** (*ex*-No. 74, Oct., 1924), ***I 2*** (*ex*-No. 75, Feb. 23., 1925), ***I 3*** (*ex*-No. 76, June 8, 1925), ***I 4*** (May 22, 1928). All by Kawasaki, Kobe. Displacement : 1,955/2,480 tons. Dimensions : 320 × 30¼ × 15¾ feet. Guns : **2**—5·5 inch. Tubes : **6**—21 inch. Machinery : Diesels, H.P. 6,000 = 17 kts. *surface.* Motors H.P. 1,800 = 9 kts. Design is based in its main features on the ex-German Submarine *O* 1 (*ex-U* 125). First three authorised by 1922 Programme, and completed 1926. *I* 1 carried out a test cruise of 2,500 miles with complete success *I* 4, laid down at Kawasaki in April, 1926, built under direct superintendence of Naval Construction Department and completed in Dec., 1929.



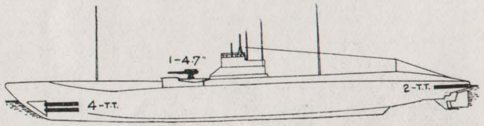
I 5.



I 1—I 4.

## First Class Submarines. (*b*) *Seagoing.*

### 8 Kaigun Type.

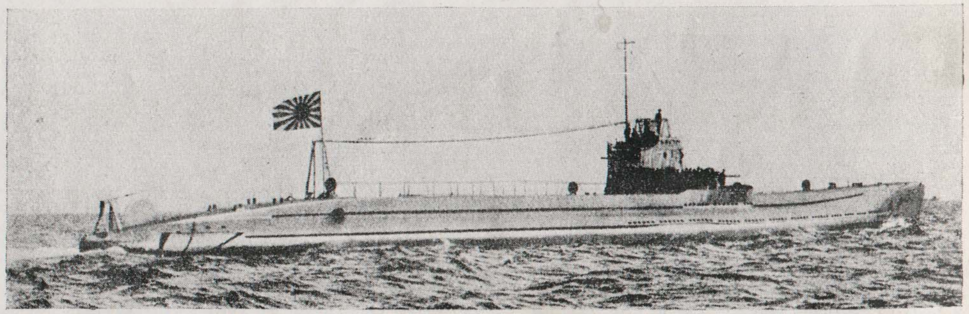


I 71 Type.

*Photo wanted*

5 *boats* : ***I 71*** (Kawasaki, Aug. 25, 1934), ***I 72*** (Mitubisi, April 6, 1935). ***I 73*** (Kawasaki, June 20, 1935), ***I 74*** (Saseho, March 28, 1937), ***I 75*** (Mitubisi, Sept. 16, 1936). Displacement, dimensions, etc , as preceding group below, but armed with **1**—4·7 inch gun, **6**—21 inch tubes.

I 71 completed Dec. 24, 1935. I 72, I 73 both completed Jan. 8, 1937. All reported to have a radius of action of 16,000 miles.

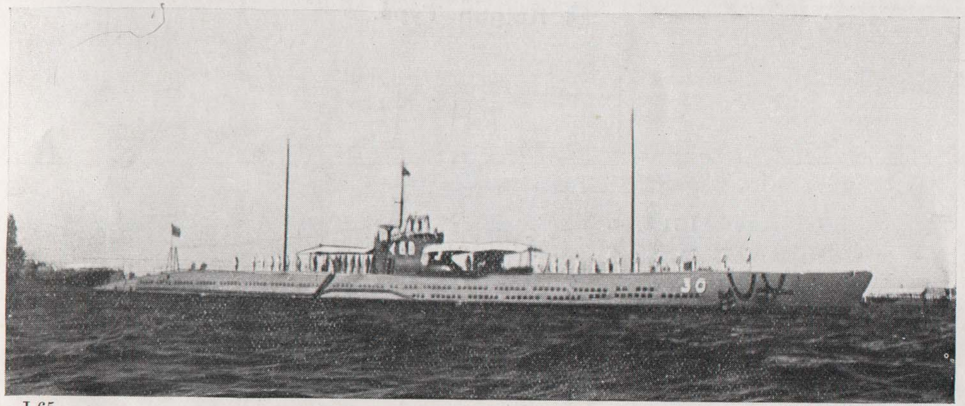


I 71, 1936, *Official.*

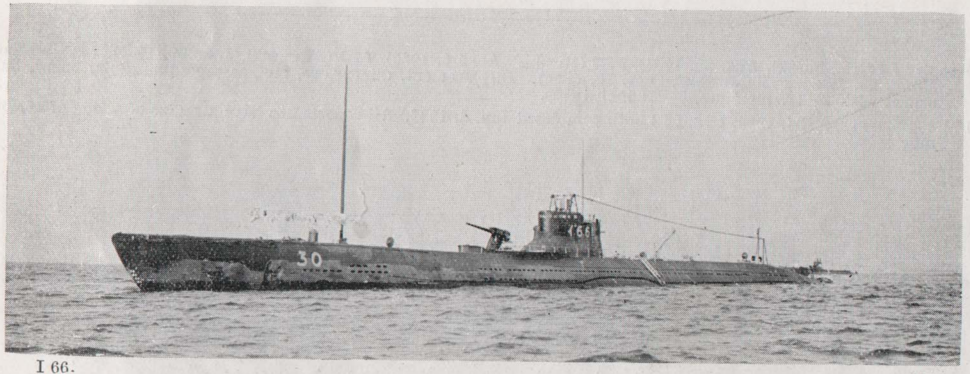
3 boats : ***I 68*** (Kure, June 26, 1933), ***I 69*** (Mitubisi, Kobe, Feb. 15, 1934), ***I 70*** (Saseho, June 14, 1934). *Surface* displacement : 1,400 tons. Dimensions : 331⅓ × 27 × 13 feet. Guns : **1**—4 inch, **1** M.G. Tubes : **6**—21 inch. 2 sets Diesels. H.P. : 6,000 = 20 kts., *surface. Submerged* 9 kts.

*Seagoing—continued.*

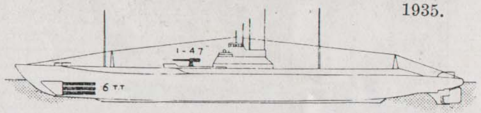
## 3 Kaigun Type.



I 65. 1933 (*added* 1935).

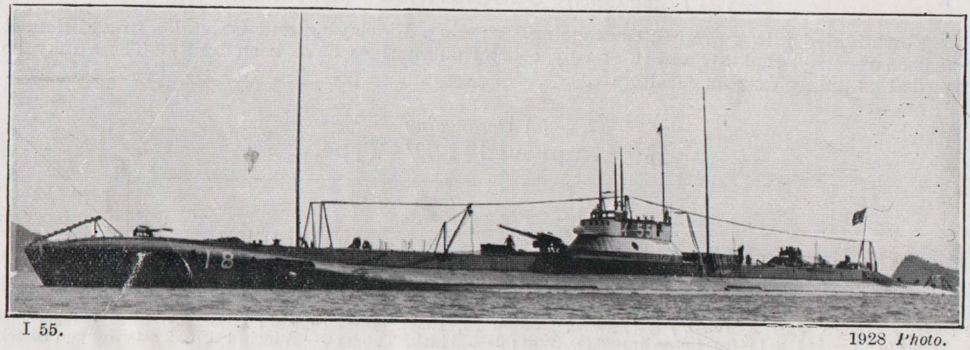


I 66. 1935.

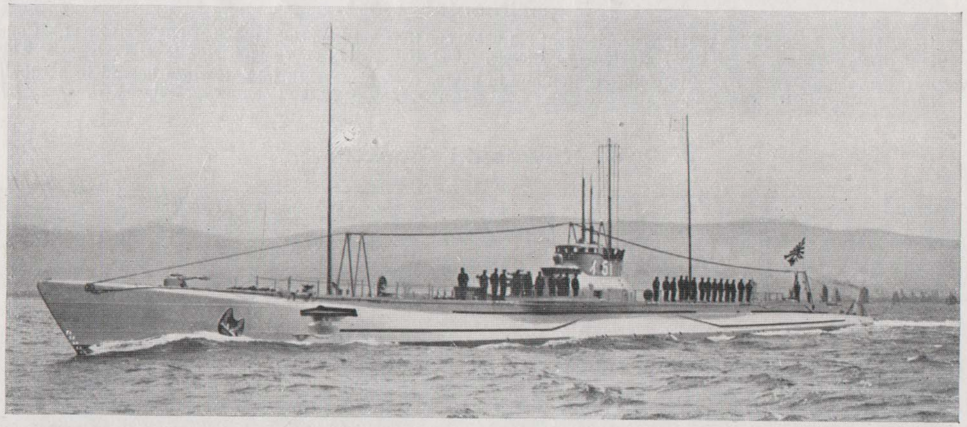


3 *boats*: I **65** (Kure, June 2, 1931), I **66** (Saseho, June 2, 1931), I **67** (Mitubisi, April 7, 1931). Displacement: 1,638/2,100 tons. Dimensions: 321½ × 27 × 16 feet, Guns: **1**—**4** inch, **1** M.G, Tubes: **6**—21 inch. 2 sets Diesels. H.P. 6,000 = 19 kts. *surface.* *Submerged* speed, 9 kts.

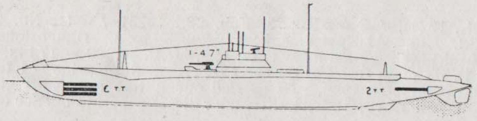
## 12 Kaigun Type.



I 55. 1928 *Photo.*



I 61. 1930 *Official.*

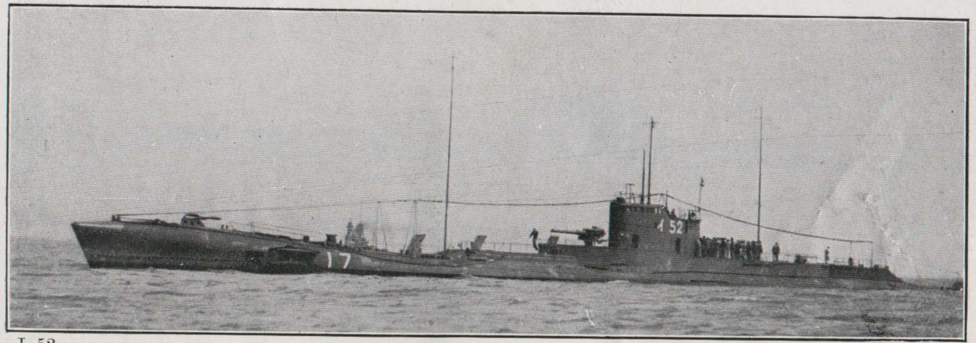


12 boats: I **53** (ex-*No.* 64, Kure, Aug. 5, 1925), I **54** (ex-*No.* 77, Saseho, March 15, 1926), I **55** (ex-*No.* 78, Kure Sept. 2, 1925), I **56** (Kure, March 23, 1928), I **57** (Kure, Oct. 1, 1928), I **58** (Yokosuka, Oct. 3, 1925), I **59** (Yokosuka, March 25, 1929). I **60** (Saseho, April 24, 1929), I **63** (Saseho, Sept. 28, 1927). I **61** (Mitubisi, Nov. 12, 1927), I **62** (Mitubisi, Nov. 29, 1928), I **64** (Kure, Oct. 5, 1929). Displacement: 1,635/2,100. Dimensions: 331 × 26 × 16 feet (except *I* 61, 62, 64, which are 321½ × 25½. Armament: **1**—4·7 inch, **1** M.G., **8**—21 inch tubes (except *I* 61, 62, 64, which have only **6** tubes). Machinery: 2 sets Diesels. B.H.P.: 6,000 = 19 kts. Electric motors, H.P.: 1,800 = 9 kts. Believed begun under 1923–25 Programmes. Cruising radius is undoubtedly very large, 16,000 miles being reported. They are supposed to be capable of crossing the Pacific and returning without refuelling. This design is the fruit of experience gained with I 51 and I 52.

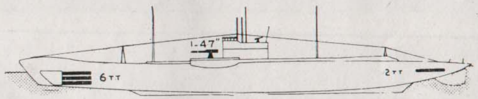
*Note.—I* 55 was seriously damaged in a typhoon in July, 1936.

*Seagoing—(continued)*

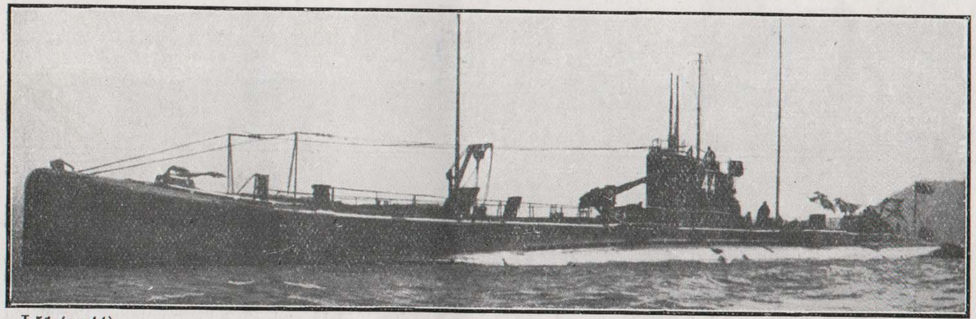
## 2 Kaigun Experimental Type.



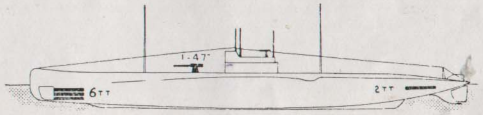
I 52. 1926 *Photo.*



I **52** (ex-*No.* 1, Kure, June 12, 1922). Built under 1920 Programme. Displacement: 1,390/2,000 tons. Dimensions: 331 × 25 × 17 feet. Armament: **1**—4·7 inch, **1** M.G., **8**—21 inch tubes. H.P.: 6,000/1,800. Speed: 19/9 kts. Completed in May, 1925.



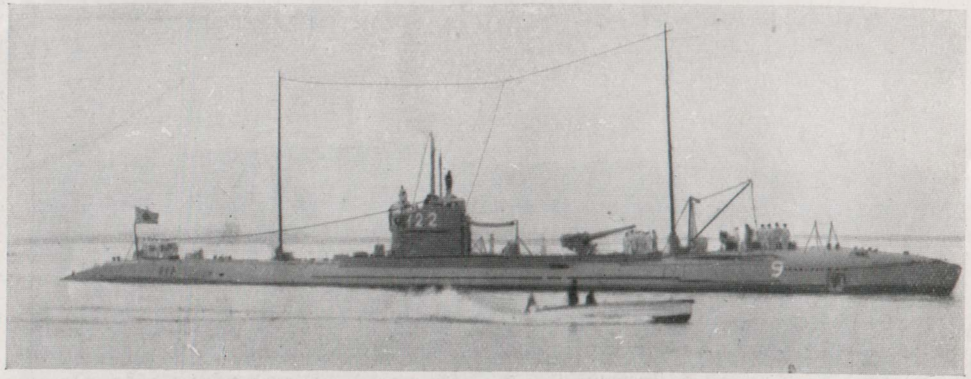
I 51 (*ex*-44). *Photo added* 1927.



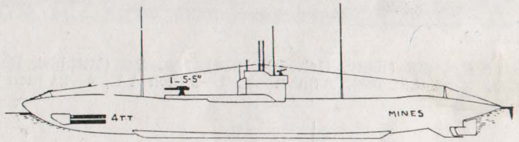
***I 51*** (ex-*No.* 44, Kure, Nov. 29th, 1921). Laid down under 1920 Programme as an experimental boat. Displacement: 1,390/2,000 tons. Dimensions: 300 × 29 × 15 feet. Armament: **1**—4·7 inch, **1** M.G., **8**—21 inch tubes. 2 Sets Sulzer Diesels. H.P.: 5,200 = 17 kts. Electric motors, H.P.: 1,800 = 9 kts. Completed June, 1924.

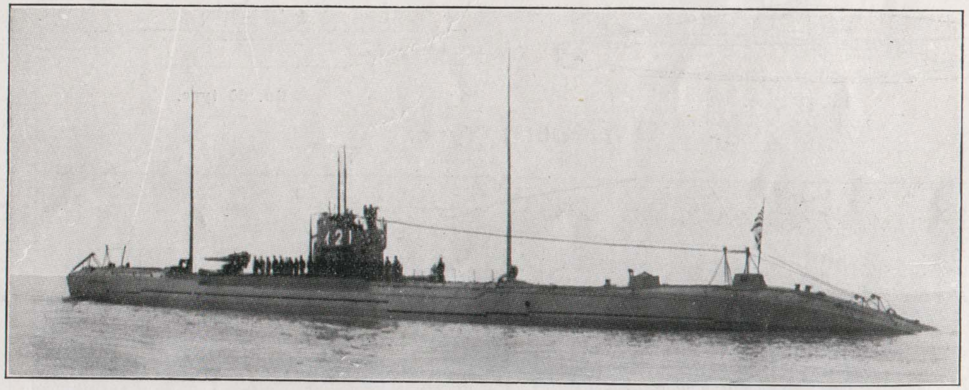
(c) *Minelaying.*

## 4 Kawasaki Boats



1922. 1930 *Photo.*



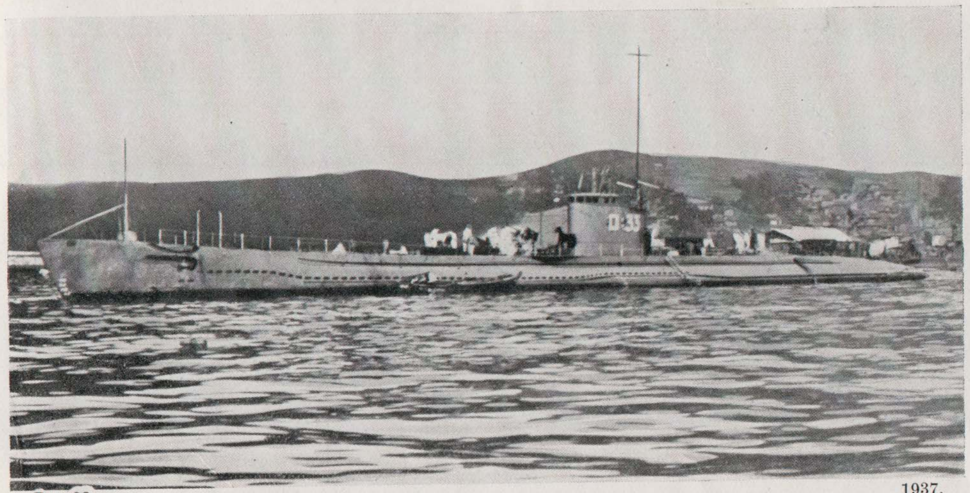


I 21. 1927 *Photo, by courtesy of Navy Dept.*

4 boats: ***I 21*** (March 30, 1926). ***I 22*** (Nov. 8, 1926), ***I 23*** (March 19, 1927) (ex-*Nos.* 48—50), ***I 24*** (Dec. 12, 1927), all by Kawasaki Co., Kobe, the first probably laid down under 1919 Programme. Displacement: 1,142/1,470 tons. Dimensions: $279\frac{1}{2} \times 24\frac{3}{4} \times 14\frac{1}{4}$ feet. Armament: **1**—5·5 inch, **4**—21 inch tubes, 42 mines. Machinery: Diesels, H.P. 2,400 = 14 kts. Electric motors, H.P. 1,200 = 9·5 kts. *I* 22 and *I* 23 completed at Kure, owing to temporary suspension of business by Kawasaki Co. Construction of *I* 24 completed at Kawasaki by Naval Construction Dept. Design believed to be based on German *U B* types.

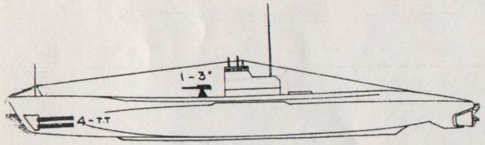
(*d*) *Coastal* from 500 to 1000 tons.

## 2 Kaigun type.

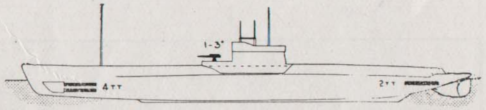


Ro. 33. 1937.

2 *boats*: ***Ro. 33*** (Kure, Oct. 10, 1934), ***Ro. 34*** (Mitubisi, Dec. 12, 1935). Displacement, 700/—tons. Dimensions 239½ × 22 × 12 feet. Armament: **1**—3 inch AA., **4**—21 inch tubes (believed all in bow). H.P.: 2,600/— = 16/9 kts.

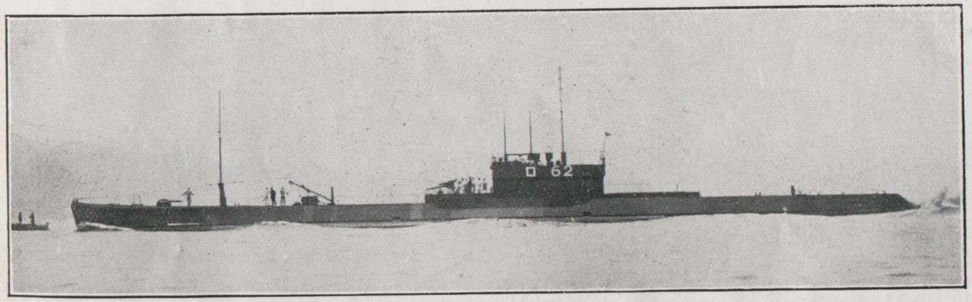


Ro. 33 type.



Ro. 60 type.

## 9 Mitubisi Type.

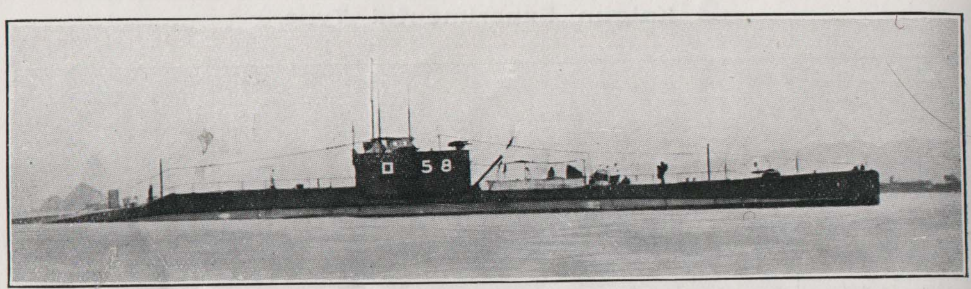


Ro. 62. *Photo added* 1926.

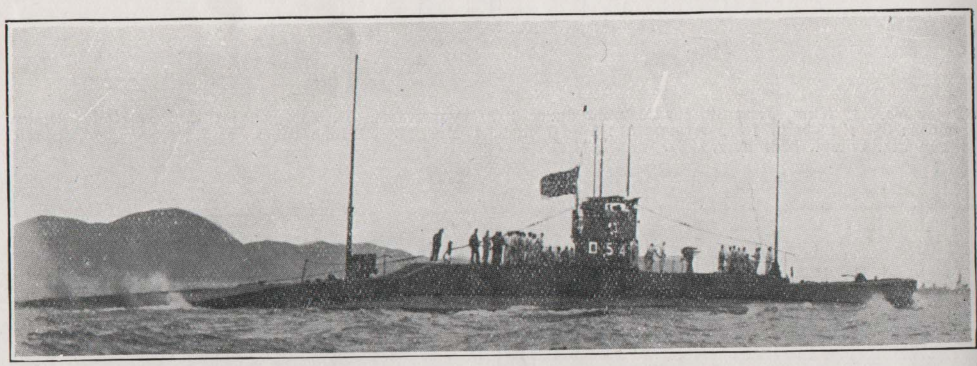
9 boats: ***Ro. 60*** (ex-*No.* 59), ***Ro. 61*** (ex-*No.* 72), ***Ro. 62*** (ex-*No.* 73), ***Ro. 63*** (ex-*No.* 84), ***Ro. 64—68***. All built by Mitubisi, Kobe, 1923–25. Displacement: 988/1,300 tons. Dimensions: 250 (*p.p.*) × 24 × 13 feet. Guns: **1**—3 inch, **1** M.G. Torpedo tubes: **6**—21 inch. Vickers Diesels H.P. 2,400 = 16 kts. Motors: 1,800 H.P. = 10 kts. Fuel: 75 tons. Complement: 48.

*Notes.*—Built under 1920–22 Programmes. Apparently an enlargement of the *Ro.* 51—59 type. Completed—*Ro.* 60 1923; *Ro.* 61—63, 1924; *Ro.* 64 and 68, 1925; *Ro.* 65 and 67, 1926; *Ro.* 66, 1927.

## Mitubisi—Vickers type.



Ro. 58. (*Ro.* 57 and 59 same.) (Note absence of step forward.) *Photo added* 1926.

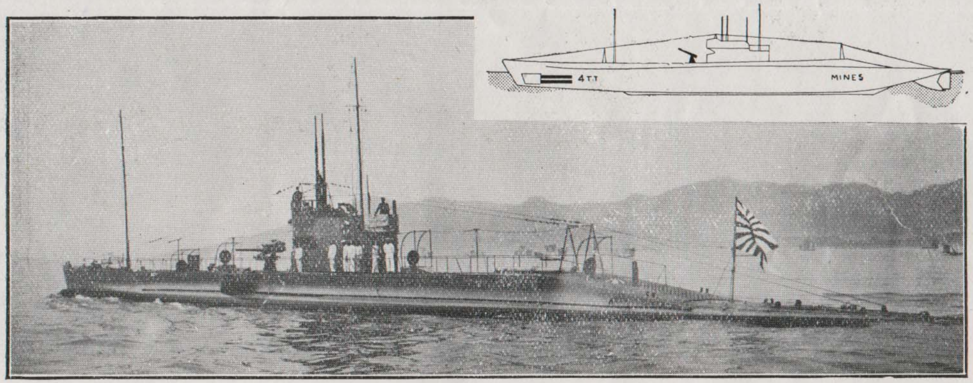


Ro. 54. *Photo added* 1927.

8 boats: ***Ro. 51*** (ex-*No.* 25), ***Ro. 53—56,*** (ex-*No.* 30), ***Ro. 57*** (ex-*No.* 46), ***Ro. 58*** (ex-*No.* 47), ***Ro. 59*** (ex-*No.* 57). (Mitubisi, Kobe, 1919–22). Displacement: First five, 893/1,082 tons; remaining three, 889/1,082 tons. Dimensions: 232 × 23½ × 13 feet. (Ro. 57—59, 250 feet) Guns: **1**—3 inch AA. Torpedo tubes: **6**—18 inch in *Ro.* 51 and 54—56; **4**—21 inch in *Ro.* 53 and 57—59. H.P.: 2,400/1,200 = Speed 17/9 kts. Fuel: 65 tons. Complement: 48. Endurance: *About* 7,500 miles *on surface.*

*Notes.*—Gun mounted on extended C.T. in *Ro.* 57—59. Begun under 1917-18 and 1919 Programmes. Completed 1920-23. *Ro.* 52 scrapped April, 1932.

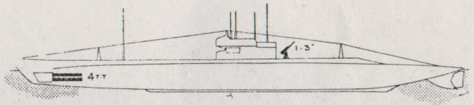
## 3 **Kawasaki Boats** (Minelayers).



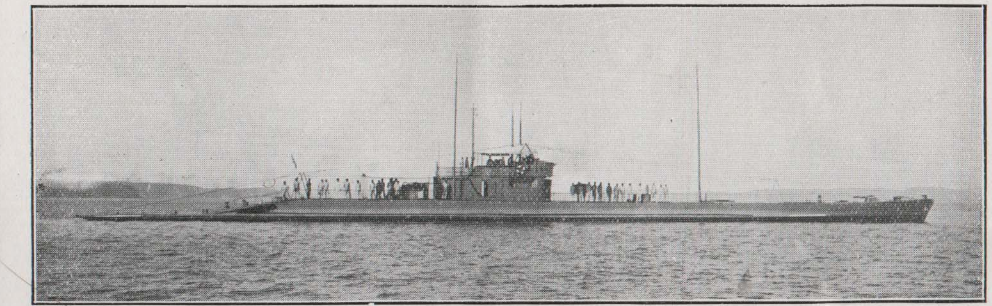
1926 *Photo, by courtesy of Navy Department.*

3 boats : **Ro. 30–32** (ex-*Nos.* 69—71). (Kawasaki Co., Kobe, 1923–26). Dimensions: 243½ (*p.p.*) × 20 × 12 feet. Displacement : 655/1,000 tons. Guns : **1**—4·7 inch, **1**—3 pdr. Torpedo tubes : originally carried **5**—21 inch, now **4**—21 inch, and are fitted as minelayers. H.P. : 1,200/1,200 = 13/10 kts.

*Notes.*—Built under 1919 Programme, and completed 1923–24. *Ro.* 31. (ex-*No* 70) sank during trials at Kobe, August, 1923, but was salved and rebuilt. *Ro.* 30 and *Ro* 32 both completed during 1924. *Ro.* 31 completed at Kure, 1927, owing to financial crisis at Kawasaki Yard.



## 3 **Kaigun Type.**



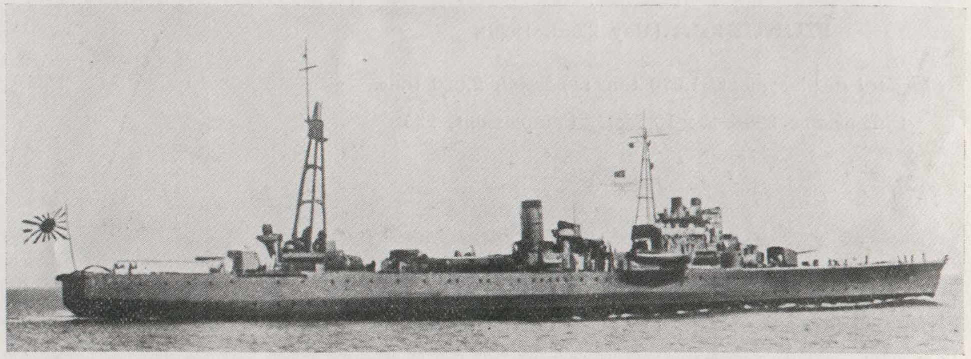
Ro. 26. 1926 *Photo, by courtesy of Navy Department, Tokyo.*

3 boats : **Ro. 26** (ex-*No.* 45, Saseho, Oct. 18, 1921), **Ro. 27** (ex-*No.* 58, Yokosuka, July 22, 1922), **Ro. 28** (ex-*No.* 62, Saseho, April 13, 1922). Displacement : 746/1,000 tons Dimensions : 243½ × 20 × 12 feet. Guns : **1**—3 inch AA. Torpedo tubes : **4**—21 inch. 2 sets of Sulzer Diesels. H.P. : 2,600 = 16 kts. Electric motors, H.P. : 1,200 = 9 kts. Complement : 40.

***Notes.*—Built under 1919 Programme and completed 1922-24.**

## **Minelayers** (*Husetukan*).

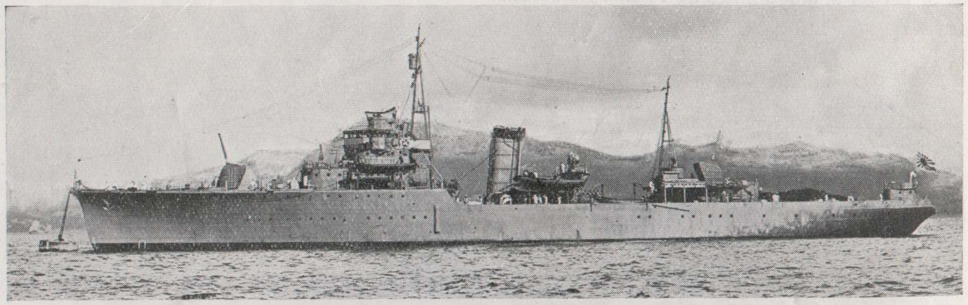
First Class (over 1,000 tons).



1937.

**OKINOSIMA** (Harima S.B. Co., Nov. 15, 1935.) *Standard* displacement : 4,400 tons. Dimensions : 386½ × 51⅕ × 16½ feet (*mean*). Guns : **4**—5·5 inch, **4** M.G. Geared turbines. S.H.P. : 9,000 = 20 kts. 4 Kanpon boilers.

*Note.*—Laid down Sept. 27, 1934, and completed Sept. 30, 1936. Name is that of an island off which the Battle of the Japan Sea was fought in 1905.



YAEYAMA (Now painted white). 1933 *Photo, Official.*

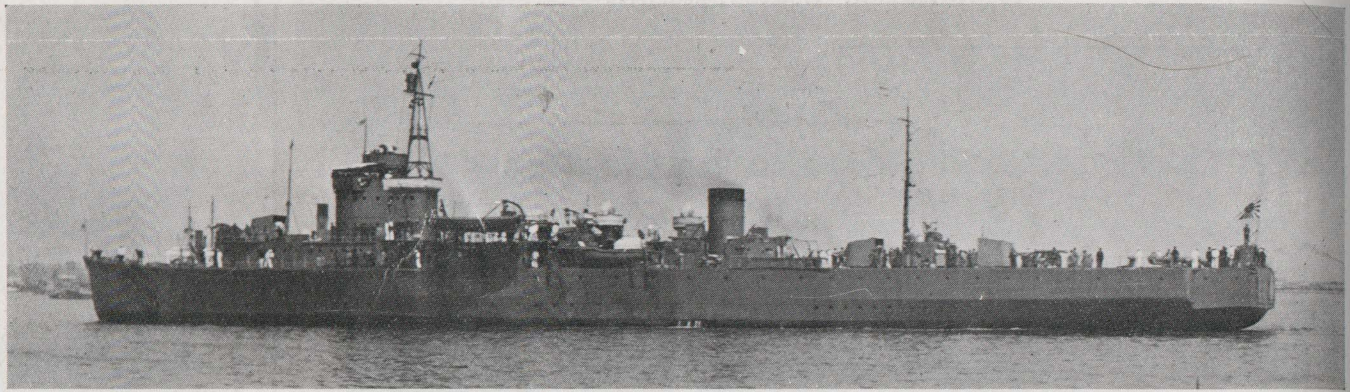
**YAEYAMA** (Kure, October 15, 1931). *Standard* displacement : 1,135 tons. Complement : 150. Dimensions : 280½ × 34½ × 8 feet. Guns : **2**—4·7 inch AA., **2** M.G. Machinery : 2 sets triple expansion, H.P. : 4,800 = 20 kts. 2 Kanpon boilers. Fuel: Mixed firing.

*Note.*—Is also fitted for laying anti-submarine nets. Laid down Aug. 2, 1930, and completed Aug. 31, 1932..

## ITUKUSIMA (May 22nd, 1929).

*Standard* displacement, 1,970 tons; *normal*, 2,020 tons.

Dimensions, 328 × 42 × 10 feet. Complement, 235.



1930 *Photo.*

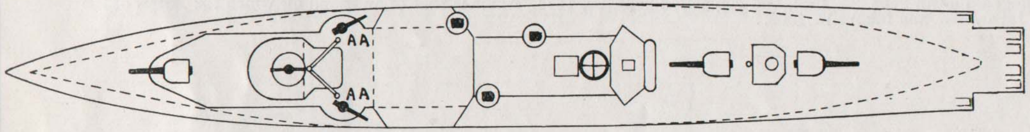
*General Notes.*—Laid down by Uraga Co., in Feb. 1928, and completed Dec. 1929. Is the first experimental Diesel-driven ship in the Japanese Navy. Design suggested by H.M.S. *Adventure* of which she is a small edition. First searchlight shown in plan has been replaced by a 6 ft. anti-aircraft range-finder. Officers' cabins in superstructure deck under fore gun and bridge. Upper deck is for mine stowage, 4 lines of minelaying rails extending from forecastle to stern. Two outer lines start abaft of bridge and extend to the wing-ports at stern. There is a single line on the forecastle from starboard bow to gun for transport back to store of picked-up practice mines. Two sizes of mines can be carried and number stowed varies as the type—roughly twice as many of the smaller size.

Guns:
3—5·5 inch, 50 cal.
2—3 inch AA.

Armour: Nil.

Mines:
250 large or 500 small.

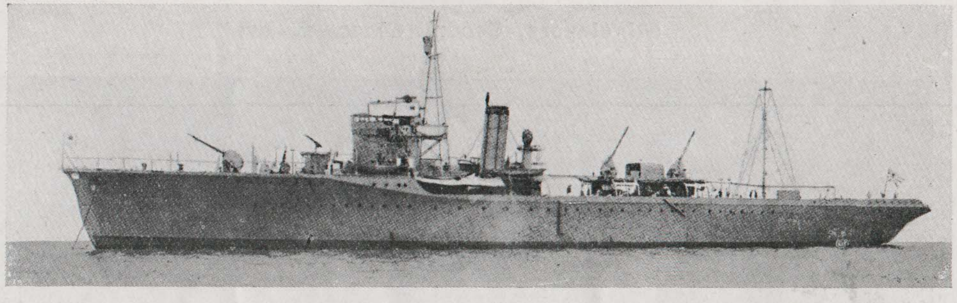
Depth charge throwers:
1—each side amidships.



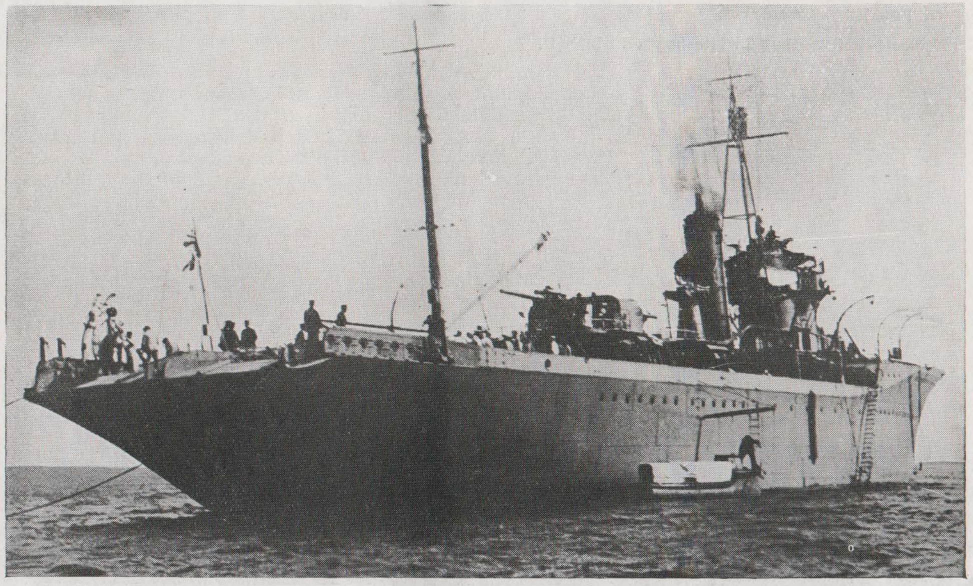
Machinery: Diesel engines. 3 sets of 1,000 B.H.P. each = 3,000 B.H.P.; Speed, 16 kts. Radius of action is 5,000 miles at 16 kts. 3 screws.

1930 *Photo.*

1930 *Photo.*



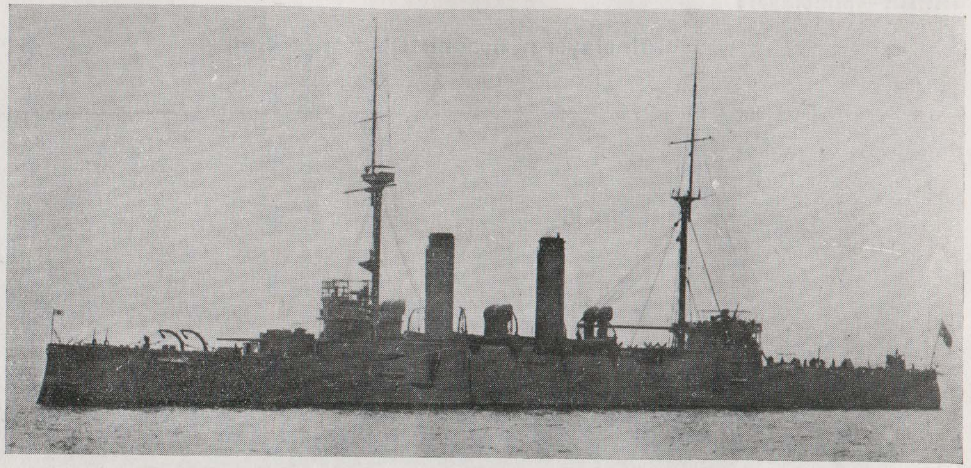
1930 *Photo.*



SIRATAKA. 1930 *Photo.*

**SIRATAKA** (Isikawazima Co., Tokyo, 25th January, 1929). Displacement : 1,345 tons *standard* ; 1,405 tons *normal*. Dimensions : 260 × 38 × 9 feet. Guns : **3**—4·7 inch AA., **1** M.G. Machinery ; 2 sets triple expansion. Boilers : 2 Kanpon. H.P. 2,200 = 16 kts.

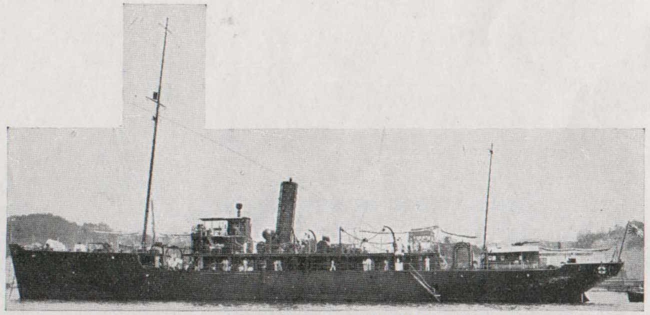
*Notes.*—Also fitted for anti-submarine netlaying. Was laid down on Nov. 24, 1927, and completed April 9, 1929. *Sirataka* means White Hawk.



1930 *Photo.*

**TOKIWA** (Armstrong, July 6, 1898) 9,240 tons. Dimensions : 408 (*pp.*), 442 (*o.a.*) × $67\frac{1}{4}$ × × $24\frac{1}{4}$ feet. Guns : **2**—8 inch, 40 cal., **8**—6 inch, 40 cal., **2**—3 inch, **1**—3 inch AA. Armour : 7″ belt, tapering to $3\frac{1}{2}$″, 2″ deck, 6″ turret, 6″ casemates. Machinery : 2 sets triple expansion. Boilers : 16 Miyabara. H.P. : 18,000 = $21\frac{1}{4}$ kts. Coal : 1,400 tons. Originally a cruiser.

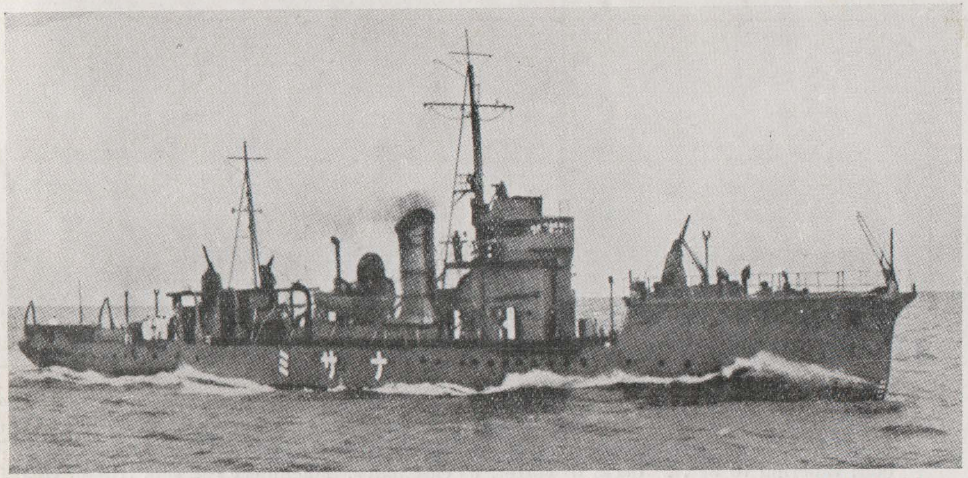
*Note.*—*Tokiwa* means Evergreen. After turret removed 1929, when she was adapted for minelaying.



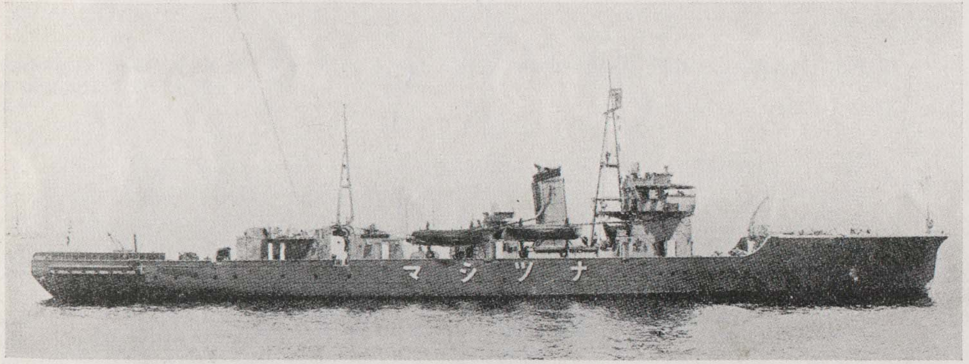
1920 *Photo, Navy Dept., Tokyo.*

**KATURIKI** (Kure, Oct., 1916). 1,540 tons. Dimensions : 240 × 39 × 14 feet. Guns : 3—3 inch. Machinery : 2 sets triple expansion. H.P. : 1,800 = 13 kts. Built under 1915–16 Programme. Fitted with 4 gallows for sweeps. Reported to carry 150 mines.

## Minelayers, Second Class (*Husetutei*)



NASAMI 1936, *official.*

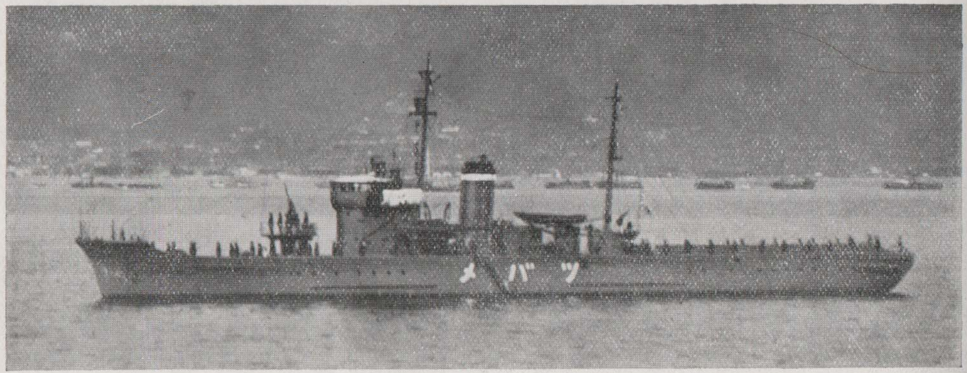


NATUSIMA 1934, *Official.*

**NATUSIMA** (Isikawazima S.B. Co., March 24, 1933).
**SARUSIMA** (Yokohama Dock Co., Dec. 16, 1933).
**NASAMI** (Harima Co., March 26, 1934).

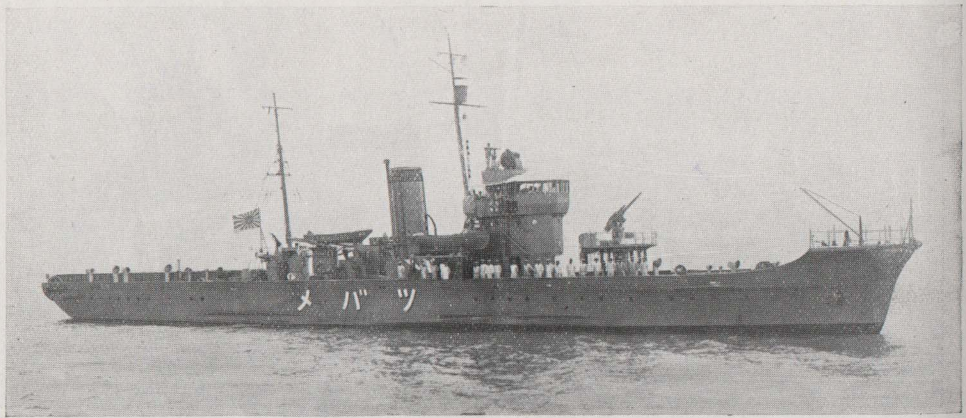
Displacement: 443 tons. Dimensions: 225 × 24½ × 5½ feet. Guns: **2**—3 inch AA., **1** M.G. Machinery: 2 sets Diesels. H.P.: 2,300 = 19 kts.

## Minelayers, Second Class—*continued.*



TUBAME. 1931 *Photo.*

*Kamome* similar (but 2 white bands on funnel).

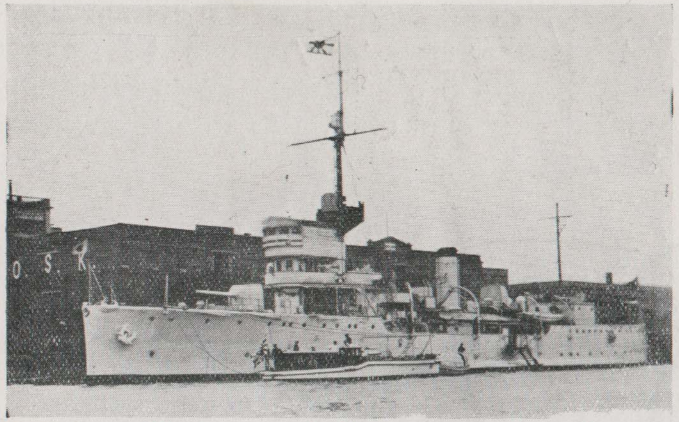


TUBAME (now has 1 white band on funnel as in upper photo). 1930 *Photo, Navy Dept., Tokyo.*

**KAMOME** (Osaka Ironworks, 27th April, 1929), **TUBAME** (Yokohama Dock Co., 24th April, 1929), Displacement: 450 tons *standard*, 570 tons *normal*. Dimensions: 206⅔ × 23½ × 6⅓ feet. Guns: **1**—3 inch A.A. H.P. 2,500 = 19 kts. Also equipped for netlaying.

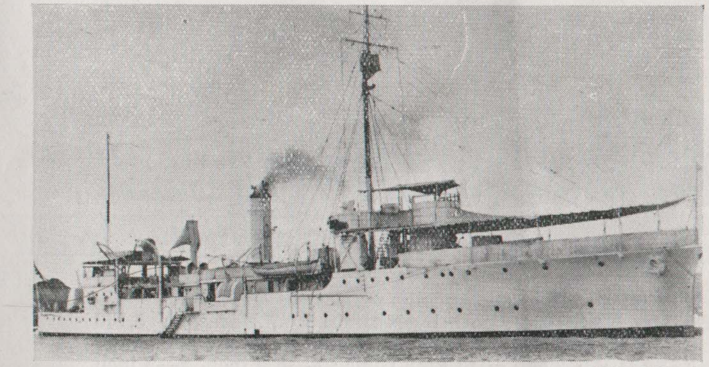
*Notes.*—Both laid down in 1928. Meanings of names are as follows: *Kamome*—Seagull. *Tubame*—Swallow.

## Gunboats.



ATAKA (Now has tripod foremast, as in silhouette). 1936, *Official*.

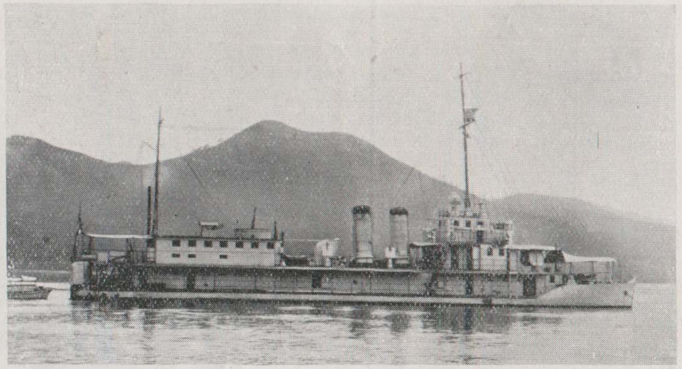
**ATAKA** (ex-*Nakoso*). (Yokohama Dock Co., April, 1922). 725 tons. Complement: 118. Dimensions: 222 × 32 × 7½ feet. Guns: **2**—4·7 inch, **2**—3 inch AA. Machinery: Triple expansion. Designed H.P.: 1,700 = 16 kts. Boilers: 2 Kanpon. Authorised under 1920–28 Fleet Law, laid down 1921, and completed 1922. Equipped for submarine salvage work.



1936 *Official*.

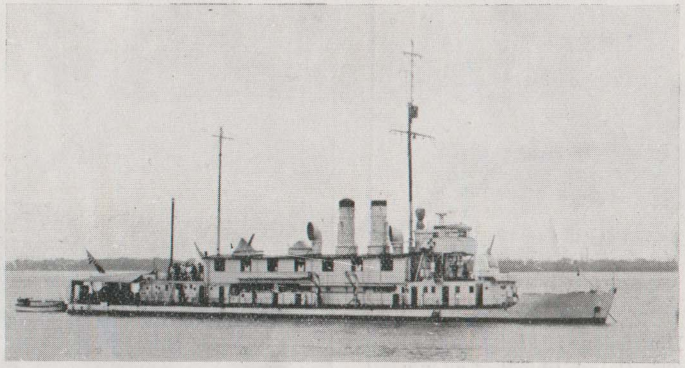
**SAGA** (Saseho, 1912). 685 tons. Complement, 99. 210×29½×7¼ feet. Guns: **1**—4·7 inch, **3**—3 inch AA., **6** M.G. Machinery: Triple expansion, 3 screws. Boilers: 2 Kanpon. Designed H.P. 1600 = 15 kts. Coal: *maximum* 400 tons. Completed Nov., 1912.

## River Gunboats.



ATAMI. 1937.

**ATAMI** (Tama Works, March 30, 1929), **HUTAMI** (Hudinagata Co., Nov. 20, 1929). Displacement: 170 tons. Dimensions: 148⅔ × 20⅔ × 3 feet. Guns: **1**—3 inch AA., **6** M.G. H.P.: 1,200 = 16 kts. Machinery: 2 sets triple expansion. Boilers: 2 Kanpon. Completed 1929 and 1930 respectively.

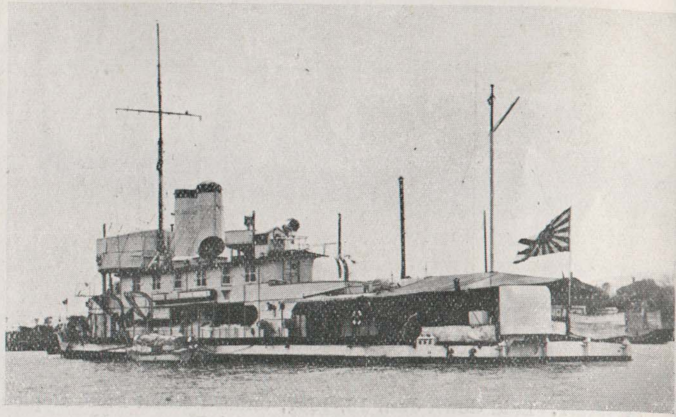


SETA. 1937.

**HIRA** (March 24, 1923, Mitubisi, Kobe).
**HODU** (April 19, 1923, Mitubisi, Kobe).
**KATADA** (July 16, 1922, Harima S.B. Co.).
**SETA** (June 30, 1922, Harima S.B. Co.).

Displacement: 305 tons. Dimensions: 180 × 27 × 3⅓ feet. Guns: **2**—3 inch AA., **6** M.G. Machinery: 2 sets triple expansion. Boilers: 2 Kanpon (mixed firing). Designed H.P.: 2,100 = 16 kts. Authorised under 1920–28 Fleet Law. Laid down 1922 and completed 1923.

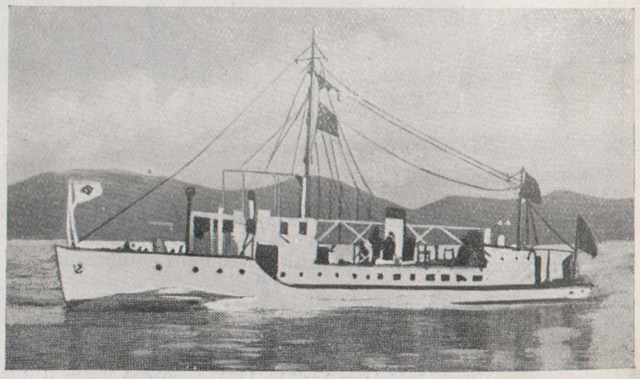
## River Gunboats—*continued*.



1937.

**TOBA** (1911). 215 tons. Complement: 59. Dimensions: 180 × 27 × 2⅔ feet. Guns: **2**—3 inch AA., **6** M.G. H.P.: 1,400 = 15 kts. Coal: 80 tons. Built at Saseho.

## Tender.



**KOTAKA** (1929). 55 tons. Dimensions: 98½ × 16 × 2 feet. Guns: **3** M.G. Machinery: 2 Diesels. H.P.: 400 = 15 kts. Laid down September, 1929 at Tama Works, and completed January, 1930.

## Repair Ship.

*Building.*

**AKASI.** Laid down Jan. 18, 1937, under Second Fleet Replenishment Law. 10,000 tons. First big repair ship built for the Imperial Japanese Navy.

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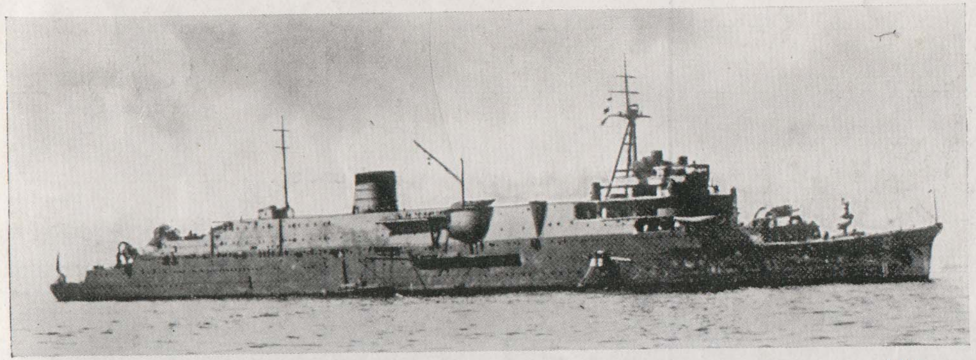
## Submarine Depot Ships (*Sensui Bokan*).

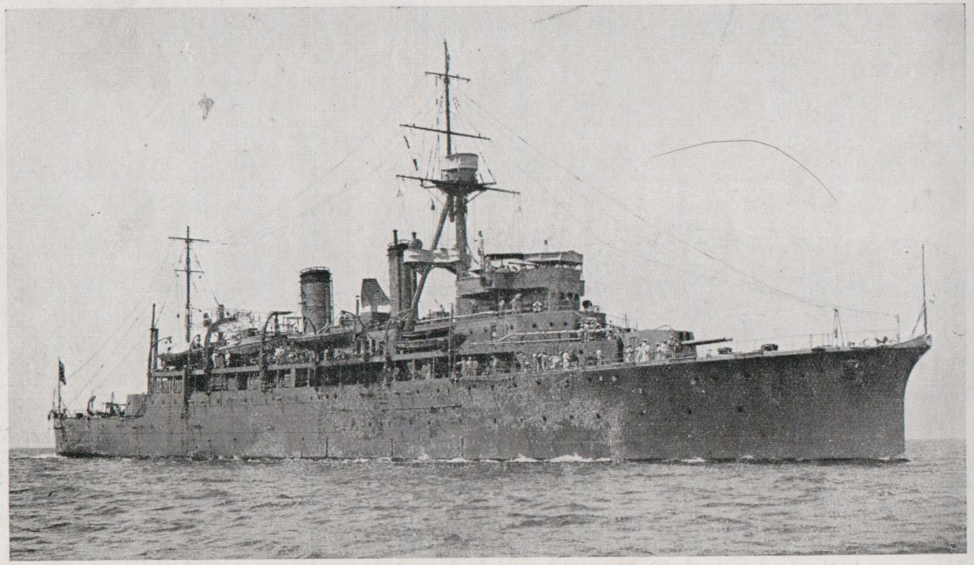


1936.

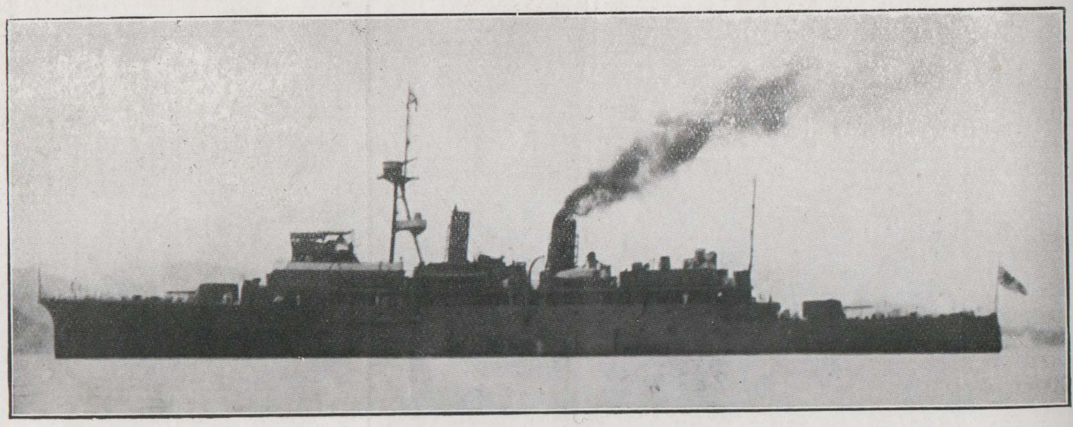
**TAIGEI** (Yokosuka, Nov. 16, 1933). Displacement : 10,000 tons. Dimensions : 647 (*w.l.*), 689 (*o.a.*) × 59 × 17 feet. Guns : **4**—5 inch AA., **12** M.G. 4 sets Diesels. H.P. : 13,000 = 20 kts. Complement : 413. 3 Aircraft included in equipment, with catapult.

*Notes.*—Laid down April 12, 1933; completed March 31, 1934. *Taigei* means Great Whale. Reported to roll badly owing to light draught.

## Submarine Depot Ships—*continued.*



Tyogei (2 steam pipes to first funnel). 1934 *Photo.*

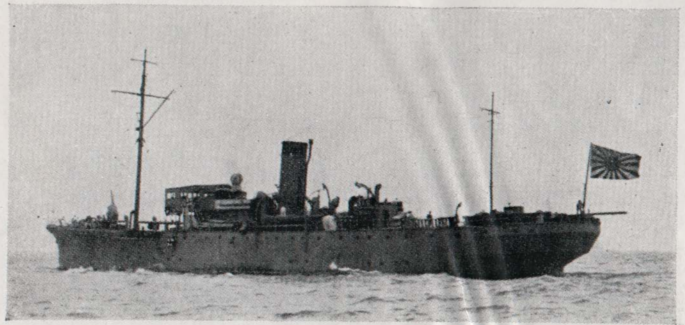


Zingei. (Now has white band round first funnel). *Photo added* 1926.

**ZINGEI** (May 4, 1923), **TYOGEI** (March 24, 1924). Both by Mitubisi Co., Nagasaki. 5,160 tons. Dimensions : 380 × 53 × $19\frac{1}{2}$ feet (*mean*), $22\frac{2}{3}$ (*max.*). Geared turbines. 2 shafts. *Zingei*, 6 Kanpon boilers ; *Tyogei*, 5. H.P. : 7,000 = 16 kts. Guns : **4**—5·5 inch, **2**—3 inch AA., **2** M.G. 2 searchlights. Each equipped to carry 1 seaplane. Both laid down in 1922 ; completed in August 1923 and August 1924, respectively.

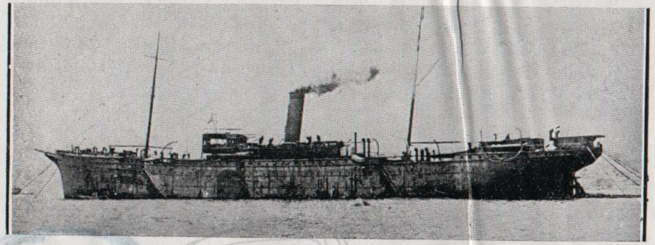
*Zingei*—Swift swimming Whale. *Tyogei*—Long Whale.

## Submarine Depot Ships—*continued.*



1937.

**KOMAHASI** (Saseho, May 21, 1913). 1,125 tons. Dimensions: 227 × 35 × 17¾ feet. Guns: 2—3 inch, 1—3 inch AA. H.P.: 1,200 = 13·9 kts. Was originally built as a Naval Transport. Laid down Oct. 7, 1912, and completed Jan. 20, 1914.



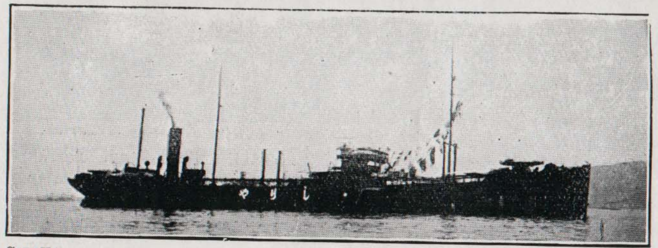
**KARASAKI** (ex-*Ekaterinoslav*, 1896, captured 1904). 9,570 tons. Dimensions: 419 (*p.p.*), 440 (*o.a.*) × 49¾ × 17¼ feet (*max.* draught). Armament: 1—3 inch, 1—3 inch AA., 1—3 pdr. H.P.: 3,200 = 12·5 kts. (Was originally the Russian Volunteer Fleet *s.s. Ekaterinoslav*, built by Hawthorn, Leslie & Co., Hebburn-on-Tyne.)

## Oilers.*

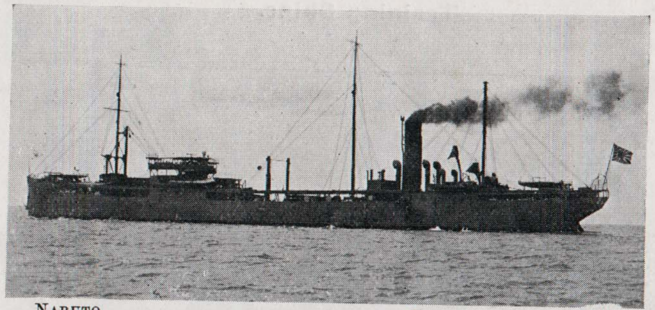
*This is not an official Rating. These ships are included in the general classification of "Naval Transports and Storeships (*Unsokan*)," and grouped with various other auxiliaries under the head of "Special Service Ships" (*Tokumukan*).

Appearance to be as silhouette.

**TURUGIZAKI** (Yokosuka, June 1, 1935), **TAKASAKI** (Yokosuka, June 19th, 1936). Standard displacement: 12,000 tons. Dimensions: 660⅓ × 59½ × 21 feet. Guns: 4—5 inch. H.P.: 13,000 = 19 kts. Both built under Second Replenishment Law of 1933.



SIRIYA. *Photo added* 1927.



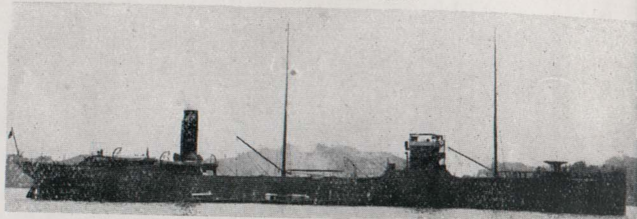
NARUTO. 1932.

### IRO, SIRIYA, TURUMI, NARUTO, HAYATOMO, ONDO, SATA, ERIMO and SIRETOKO.

Displacement: 14,050 tons. (8,000 tons *gross*). Dimensions: 470⅔ (*o.a.*), 455 (*p.p.*) × 58 × 26½ feet. Guns: 2—5·5 inch. 2—3 inch AA., *except Erimo* and *Siretoko*, 2—4·7 inch, 2—3 inch AA. Reciprocating engines. 4 cylindrical boilers, (except *Naruto*, 6 Miyabara). I.H.P.: 5,850 = 12 kts. Fuel: 8,000 tons oil as cargo and 1,000 tons oil for own bunkers. Complement: 155–157.

| *Name.* | *Builder.* | *Begun.* | *Launch.* | *Comp.* |
|---|---|---|---|---|
| *Erimo* .. | Kawasaki Co., Kobe. | 3/5/20 | 28/10/20 | 16/12/20 |
| *Siretoko* .. | | 16/2/20 | 17/7/20 | 20/9/20 |
| *Ondo* .. | | 15/3/22 | 21/10/22 | 12/3/23 |
| *Iro* .. .. | Osaka I.W. | 2/9/21 | 5/8/22 | 30/10/22 |
| *Turumi* .. | | 10/3/21 | 29/9/21 | 14/3/22 |
| *Sata* .. | Yokohama Dock Co. | 6/3/20 | 28/10/20 | 24/2/21 |
| *Siriya* .. | | 7/4/21 | 12/11/21 | 8/2/22 |
| *Hayatomo* .. | Kure | 14/3/22 | 4/12/22 | 18/5/24 |
| *Naruto* .. | Yokosuka | 11/4/22 | 30/1/23 | 30/10/24 |

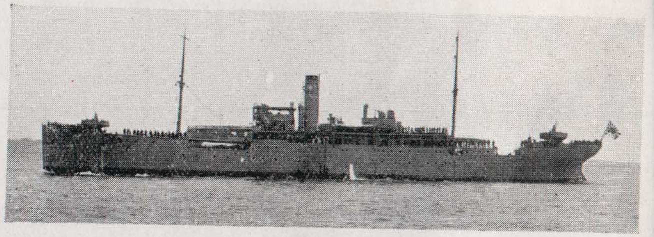
## Oilers—*continued.*



1929 *Photo, Navy Dept., Tokyo.*

**SUNOSAKI** (Yokosuka D.Y., June, 1918). 8,800 tons. Dimen sions: 400 × 50 × 23 feet. Guns: 2—4·7 inch, 2—3 inc AA. H.P.: 6,000 = 14 kts. Carries 5,000 tons oil. Buil under 1916–17 Programme.

## Colliers.

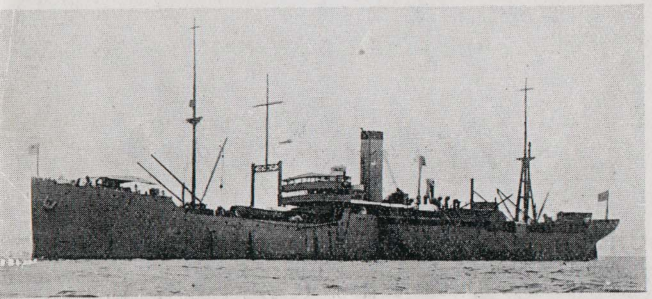


NOZIMA. 1933 *Photo.*

(*Note: Is passing "Akagi" seen over well decks.*)

**NOZIMA** (Feb. 3, 1919), **MUROTO** (Oct. 23, 1918). Both built by Mitubisi Co., Kobe. 8,215 tons. Dimensions: 345 × 50 × 23·9 feet. Guns: 2—4·7 inch. H.P.: 2,500 = 12·5 kts. Coal: 877 tons. Built under Special 1918–19 Programme.

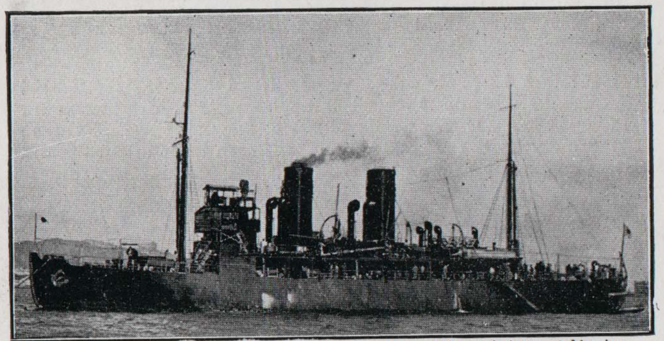
## Fleet Supply Ship.



MAMIYA. (4 legs to mainmast). *Photo added* 1935.

**MAMIYA** (Kawasaki Co., Kobe, 26 Oct., 1923). Displacement: 15,820 tons. Dimensions: 475 × 61 × 28 feet. Guns: 2—5·5 inch, 2—3 inch AA. Triple expansion engines. 8 Kanpon boilers. H.P.: 10,000 = 14 kts. Complement, 195.

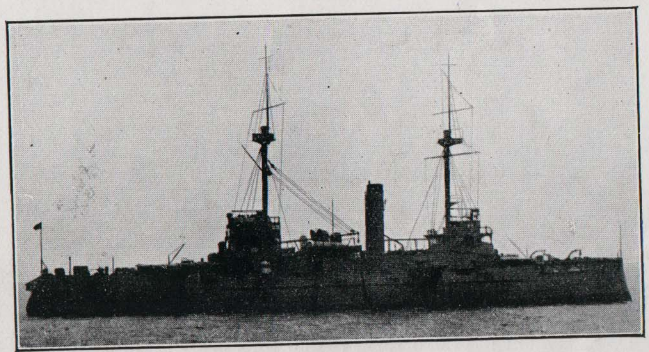
## Ice Breaker.



OTOMARI. *Photo added 1925 by courtesy of the Ministry of Marine.*

**OTOMARI** (Kawasaki Co., Oct. 3, 1921). 2,330 tons. Dimensions: 200 × 50 × $18\frac{1}{2}$ feet. Guns: 1—3 inch. Reciprocating engines. 5 cylindrical boilers. H.P.: 4,000 = 13 kts.

## Training Ships.



1929 *Photo.*

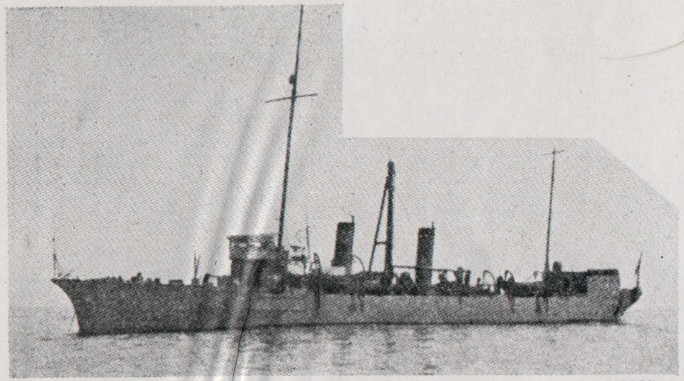
**ASAHI** (March, 1899). Ex-battleship of 11,441 tons standard displacement rendered non-effective. Dimensions: $425\frac{1}{4}$ (*o.a.*) × $75\frac{1}{4}$ × $27\frac{1}{4}$ feet. Machinery: 2 sets vertical triple expansion. 2 screws. 4 cylindrical boilers (replacing original Bellevilles). Present speed 18 kts. The name of this ship means "Rising Sun." She has no armament.

**SIKISIMA** (Nov., 1898). Ex-battleship of 11,275 tons. No guns.

**HUZI** (March, 1896). Ex-battleship of 9,179 tons. No guns.

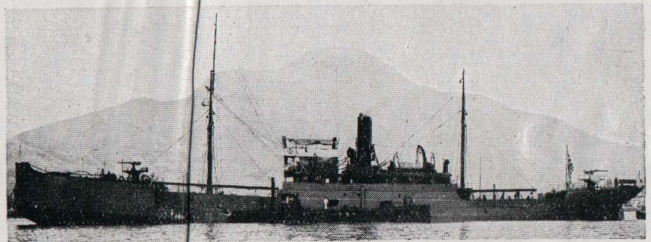
*Note.*—Cruiser, *Oi*, and Coast Defence Ships *Yakumo*, *Iwate* and *Kasuga* are employed as seagoing training ships.

## Surveying Vessels.



1937.

と よ **YODO** (Kobe, 1907). 1320 tons. Comp., 182. 280 (*p.p.*) $305\frac{1}{2}$ (*o.a.*) × 32 × 11 feet. Guns: 2—3 inch, 2 M.G. Armour: $2\frac{1}{2}''$ deck. Torpedo tubes: 2—18 inch. Machinery: 2 sets 4-cyl. triple expansion. Designed H.P.: 6,500 = 22 kts. Boilers: 4 Miyabara. Coal: 340 tons + 80 tons oil. Completed by Kawasaki, April, 1908, and formerly rated as a gunboat.

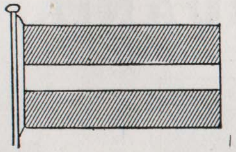


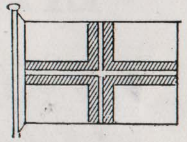
1920 *Photo, Navy Dept., Tokyo.*

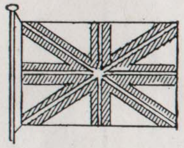
**KOSYŪ** (ex-German S.S. *Michael Jebsen*, built by Howaldt, Kiel, 1904, and captured 1914). 2,081 tons. Dimensions: $252\frac{1}{2}$ × 36 × $12\frac{1}{4}$ feet. Guns: 2—3 inch. H.P.: 800 = 9·5 kts. Ice-breaking stem.

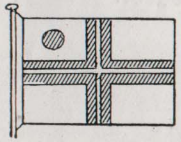
# LATVIA.

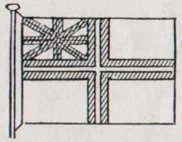
## Flags.

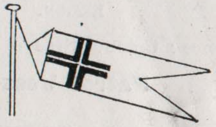

MERCANTILE.


ENSIGN.


JACK.

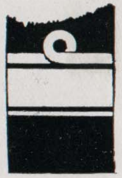

ADMIRAL.

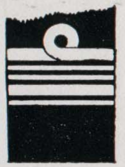

COMMANDER-IN-CHIEF
OF FORCES.

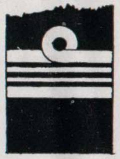

CAPTAIN COMMANDING
NAVAL FORCES

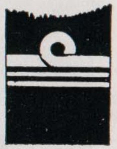
*Colour of Ships*: Light grey.
*Personnel*: About 450 permanent + 200 yearly conscripts.
*Minister of War*: General T. Balodis.
*Commanding Officer, Naval Forces*: Captain T. Spade.

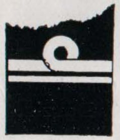
## Naval Uniforms.

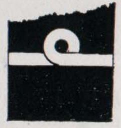

Admiralis
*Rear-Admiral*


Juras Kapteinis
*Captain*


Komand Kapteinis
*Commander*


Kapteinis
*Lt. Commander*


Virsleitnants
*Lieutenant*

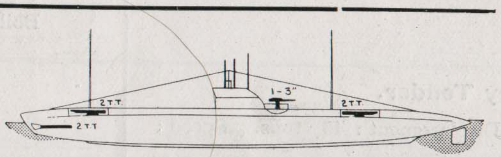

Leitnants
*Sub-Lieutenant*

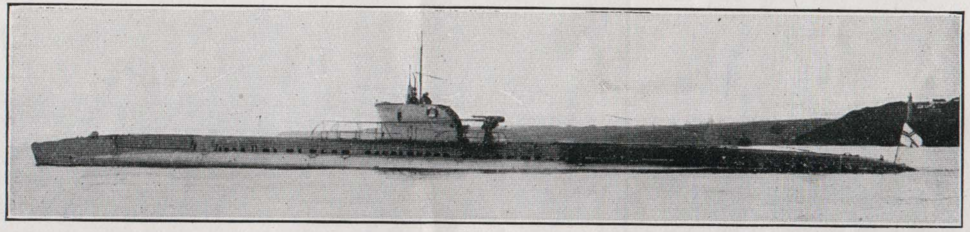
## Mercantile Marine.

(From "Lloyd's Register," 1937 figures.)

93 vessels of 184,721 tons *gross*.

## 2 Submarines.

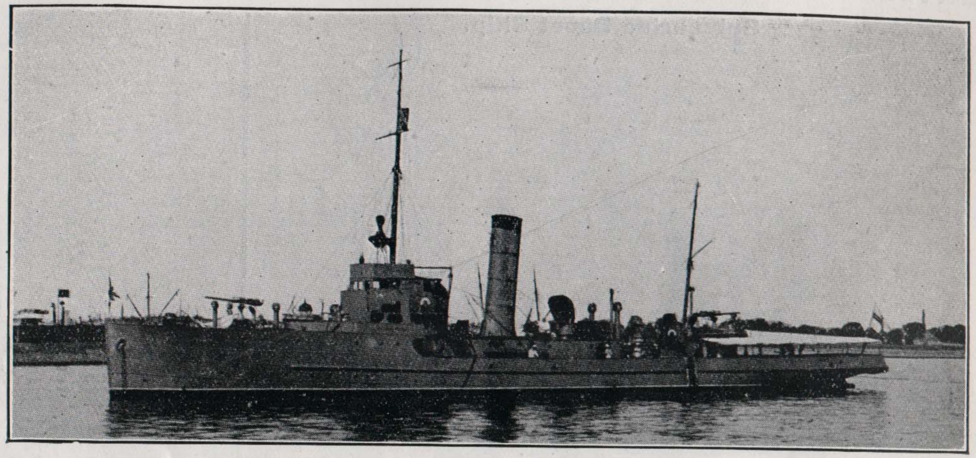



RONIS

1927 *Photo, A. & Ch. de la Loire (Builders).*

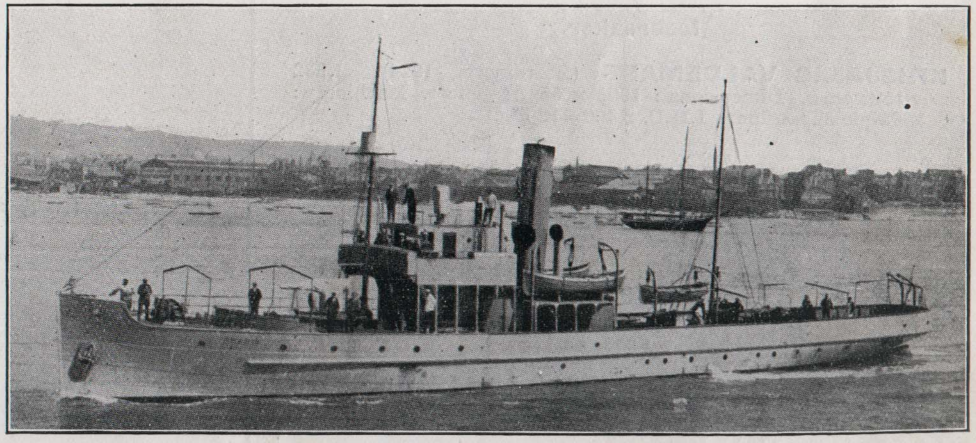
2 *Loire-Simonot* type: ***Ronis*** (At. & Ch. de la Loire, Nantes, July 1st, 1926), ***Spidola*** (Ch. & At. Augustin Normand, Havre, Oct. 6th, 1926). Displacement: $\frac{390}{514}$ tons. Dimensions: $180\frac{1}{2} \times 15 \times 10$ feet. Armaments: **1**—3 inch AA., **3** M.G., **6**—17·7 inch tubes (2 fixed bow, other 4 in revolving twin mounts.) Machinery: 2 sets Sulzer Diesels. H.P. $\frac{1300}{700}$. Speed $\frac{14}{9\cdot25}$ kts. Oil Fuel: 19 tons. Radius: $\frac{1600}{85}$ miles at $\frac{14}{9}$ kts. Diving limit, 28 fathoms. Complement, 28.

## 1 Gunboat.


1926 *Official Photo.*

**VIRSAITIS** (ex-German Minesweeper *M* 68, Neptun Werft, Rostock, 1917). Reconstructed at Riga, 1921-22, after being sunk during War. Displacement: 525 tons. Dimensions: 184 (*w.l.*) × $24\frac{1}{4}$ × $7\frac{1}{4}$ feet. Guns: 2—3·4 inch AA., 2—57 mm., 4 M.G. 1 S.L. H.P. 1850 = 17 kts. Coal: 120 tons. Complement, 69.

## 2 Minesweepers.

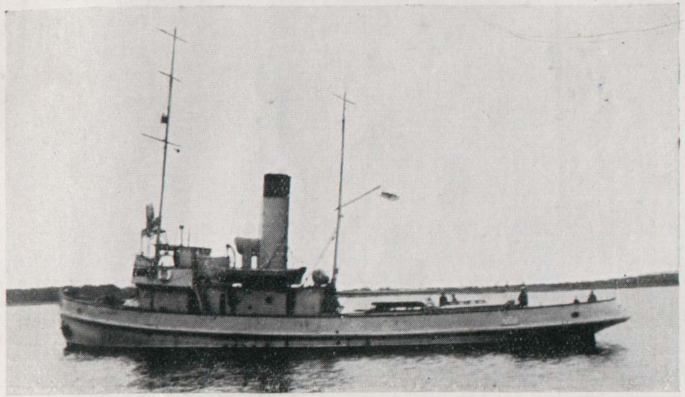

IMANTA.

1927 *Photo, Messrs. Normand (Builders).*

**VIESTURS** (Chantiers Dubigeon, Nantes, May 27th, 1926), **IMANTA** (Normand, Havre, Aug. 11th, 1926). Displacement: 255 tons. Dimensions: 160 × 21 × 5 feet. Guns: **1**—3 inch AA., **4** M.G. Provision for 30 mines. Machinery: 2 sets triple expansion. H.P. 750 = 14 kts. Fuel: 30 tons. Complement, 39.

*Note.*—These two vessels were designed for the Latvian Navy by Ch. & At. Augustin Normand.

### Submarine Depot Ship.



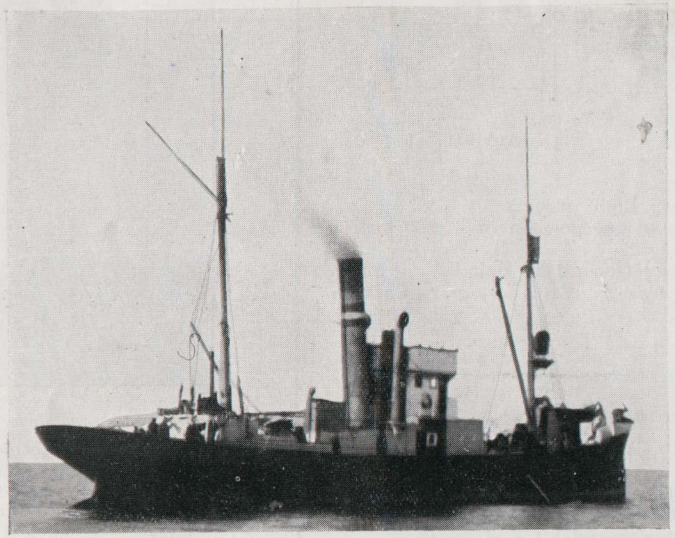
1936, *Official.*

**VARONIS** (1908). Displacement : 250 tons. Dimensions : 95½ × 21½ × 12 feet. I.H.P. : 425 = 10 kts. (Originally an icebreaker.)

### Icebreaker.

**KRISJANIS VALDEMARS** (Beardmore, 1924). 1,932 tons *gross.* Dimensions : 196½ × 55⅔ × — feet. Machinery : Triple expansion. I.H.P. 2,400 = 12 kts.

### Surveying Vessel.



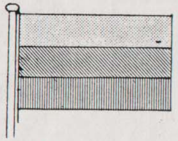
1936, *Official.*

**HIDROGRAFS** (ex-*Weichsel*, built by J. W. Klawitter, Danzig, 1918). Displacement : 600 tons. Dimensions : 126¼ × 23¼ × 13½ feet. Machinery : Triple expansion. Speed : 10 kts.

### Gunnery Tender.

**ARTILLERISTS** (1910). Displacement : 45 tons. Speed : 8 kts.

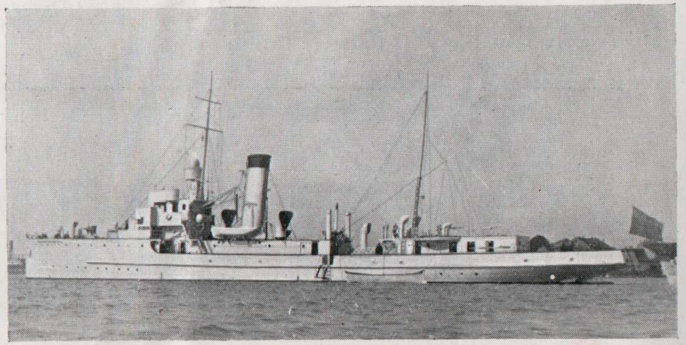
# LITHUANIA.



Ensign.

*Minister of Defence :* Colonel Stasys Dirmantas.

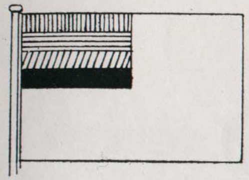
### Patrol Vessel.



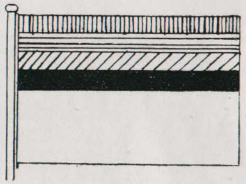
1936 *Official, by courtesy of Lithuanian Legation.*

**PREZIDENTAS SMETONA** (ex-German minesweeper *M* 59). (Geestemunde, 1917.) (Reconstructed.) Displacement : 500 tons. Complement, 48. Dimensions : 184 (*w.l.*), 193 (*o.a.*) × 24¼ × 8½ feet (*max.* draught). Guns : 2—3 inch, 3 M.G. Machinery 2 sets triple expansion. 2 shafts. I.H.P. : 1,800 = 16 kts. Boilers : 2 Schulz. Coal : 160 tons.

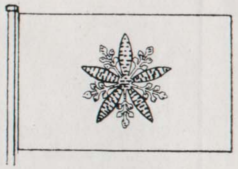
# MANCHUKUO.



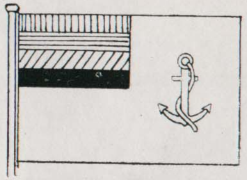
Mercantile Flag and Jack



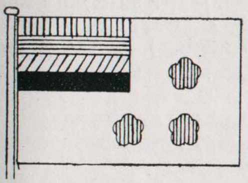
Ensign



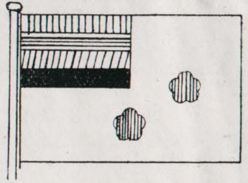
Imperial Standard



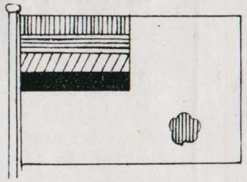
Minister of Defence



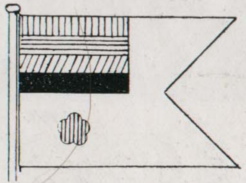
Admiral



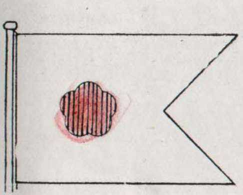
Vice-Admiral



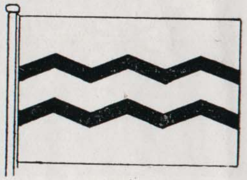
Rear-Admiral



Commodore



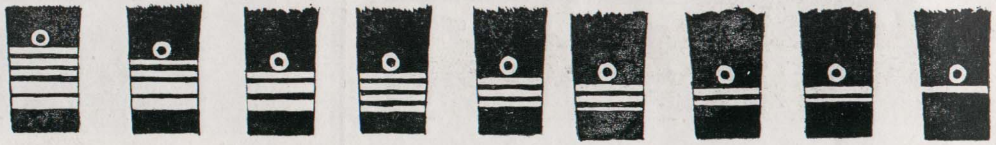
Senior Officer



Transport Flag

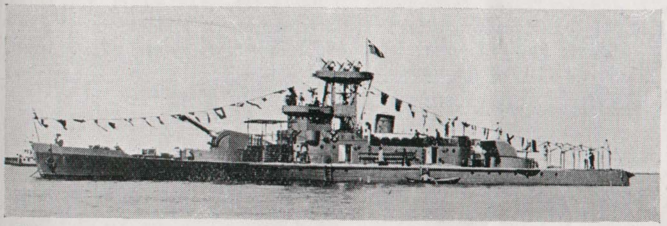
▒ Gold
□ Yellow
▨ White
■ Black
▥ Red
▤ Blue

## Insignia of Rank.



*General Notes.*—Though the following details are by no means complete, they have been officially revised, and present the first comprehensive record of the Manchukuo Navy that has yet been presented. Most of the vessels listed appear to be river craft. Several have their bows strengthened against floating ice. Some of those built in Japan were re-launched at Kharbin. In the past, much confusion has arisen through ships being referred to at different times by their Manchukuo, Japanese and Chinese names.

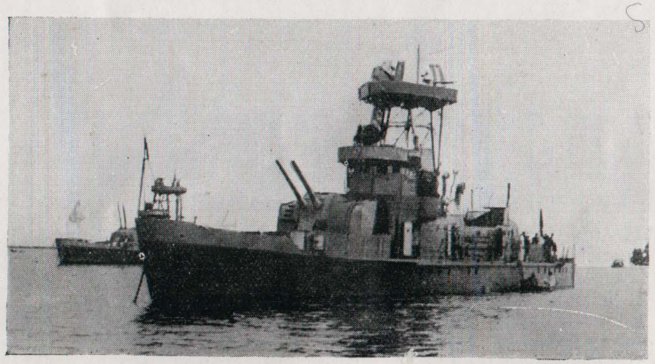
## Gunboats.



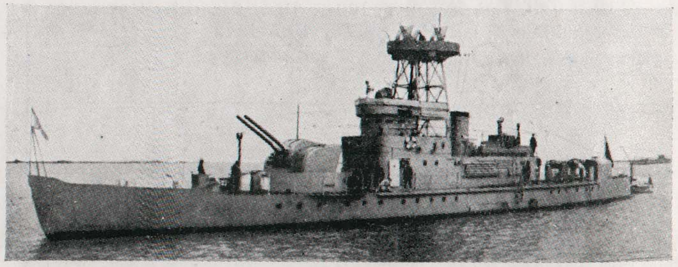
Ting Pien. 1935.

**TING PIEN, CHIN JEN** (Harima Co., 1935). *Standard* Displacement: 290 tons. Complement, 70. Dimensions: 195 × 29 × 3 feet. Guns: 2—4·7 inch AA., 3 M.G. Machinery: Diesels. Speed: 13 kts.

*Note.*—Japanese versions of these names are *Teiken, Shinjin.*



Yang Min. 1935.

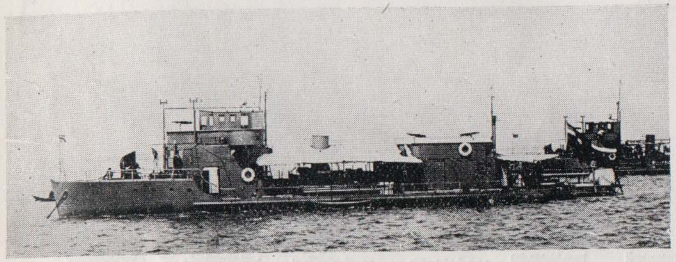


Shun Tien. 1936, *Official.*

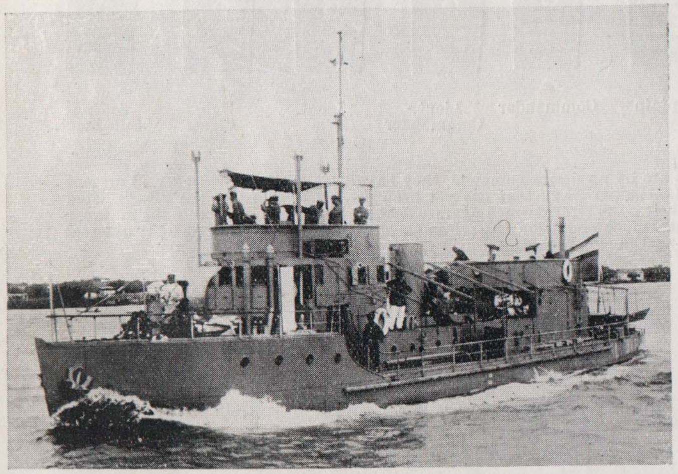
**SHUN TIEN, YANG MIN** (Harima Co., 1934). *Standard* Displacement: 270 tons. Complement, 70. Dimensions: 183 × 29 × 3 feet. Guns: 2—4·7 inch AA., 3 M.G. Machinery: Diesels. Speed: 12·5 kts.

*Note.*—Japanese renderings, *Junten, Yomin.*

## Gunboats—*continued.*



TATUNG. 1936, *Official.*



LIMIN. 1936, *Official.*

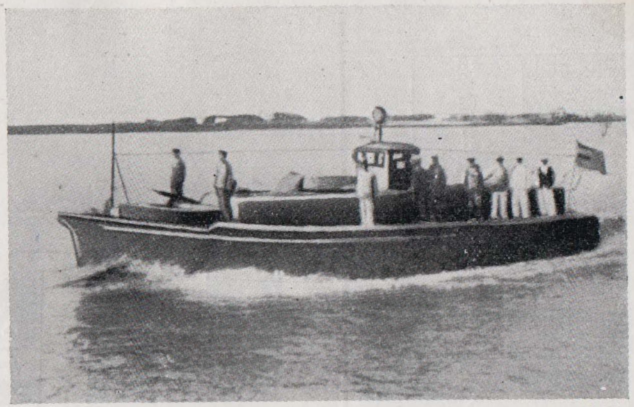
**TATUNG, LIMIN** (Mitubisi, 1933). Displacement, 65 tons. Complement, 20. Dimensions : 100 × 16 × 2½ feet. Guns : 3 M.G. Machinery : Diesels. Speed, 10·5 kts.

*Note.*—Japanese names, *Daido, Rimin.*

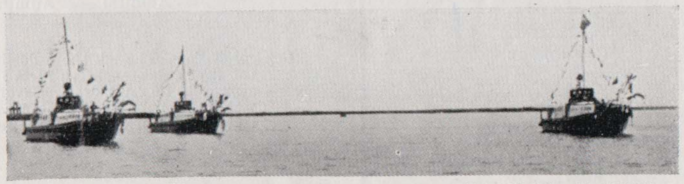
*Photo wanted.*

**CHIMIN** (Harbin, 1934). 20 tons. Dimensions : 65 × 11 × 2 feet. Guns : **2** M.G. Speed : 8·5 kts.

## Gunboats—*continued.*



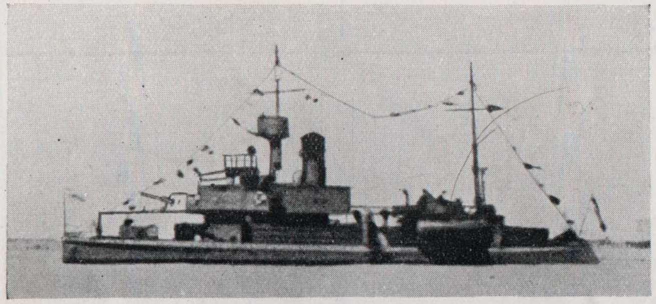
EMIN. 1935.



PUMIN, EMIN, HUIMIN. 1934 *Official, added* 1936.

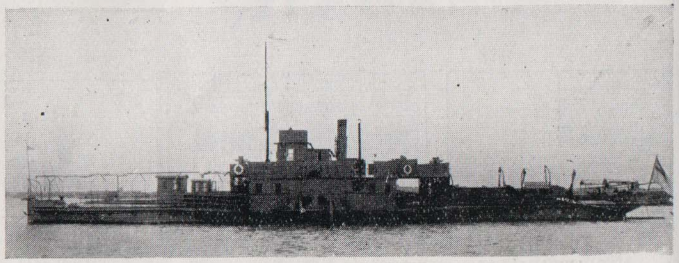
**EMIN, HUIMIN, PUMIN** (Kawasaki Co., 1933). Displacement : 15 tons. Dimensions : 56 × 11 × 2½ feet. Guns : **3** M.G. Speed : 8·5 kts.

*Note.*—Japanese names, *Eiam, Keimin, Fumin.*



**LISUI** (ex-German gunboat *Vaterland*), (Schichau, Elbing, August 26, 1903.) Displacement : 350 tons (*full load ?*). Complement, 50. Dimensions : 164 × 26¼ × 2⅗ feet. Guns : **2**—57 mm., **2** M.G. Machinery : Triple expansion. I.H.P. : 1,380 = 13 kts. (*trials*), present speed under 7 kts. Boilers : Schulz. Coal : 80 tons.

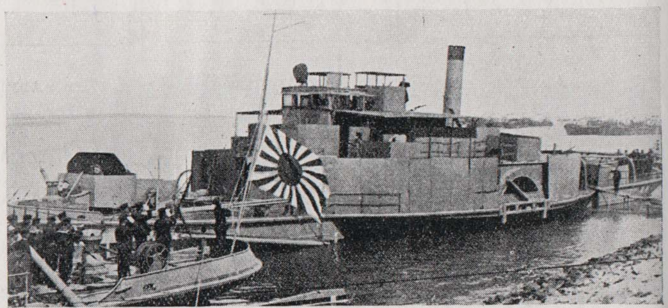
*Note.*—Japanese name, *Risui.*



1936, *Official.*

**CHIANG TUNG** (ex-Russian, 1903 ?). Displacement : 250 tons. Dimensions : 150 × 18¼ × 3 feet. Guns : **1**—3 inch, **4** M.G. Speed : 4·5 kts. (Needs re-boilering.) Kamubok

*Note.*—Japanese name, *Kotsu.*



*Added* 1935.

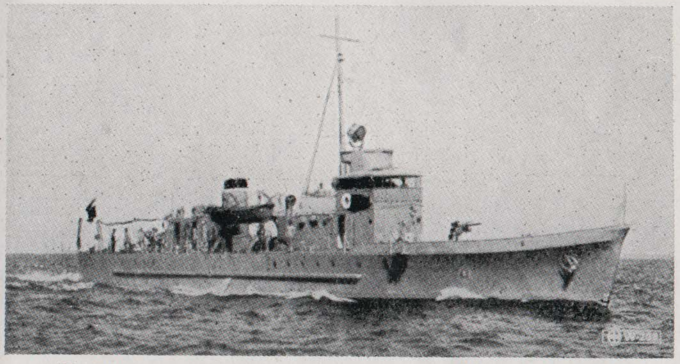
**CHIANG CHING, CHIANG PIEN** (both ex-Russian, 1897–1900). Displacement : 360 tons. Dimensions : 164 × 31½ × 3¼ feet. Guns : **1**—3 inch, **4** M.G. Present speed, 7 to 7·5 kts.

*Note.*—Japanese names, *Kosei, Kohei.*

**LICHI** (ex-Russian, 1895). (Photo wanted.) Displacement : 362 tons. Dimensions : 158 × 42¾ × 3½ feet. Guns : **1**—3 inch, **4** M.G. Present speed about 7·5 kts.

*Note.*—Japanese name, *Risei.*

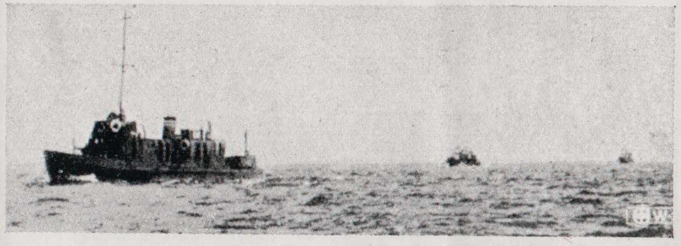
## Patrol Vessels.



HAIFENG. 1934 *Official, added* 1936.

**HAIFENG, HAILUNG** (Kawasaki Co., 1933.) Displacement: 200 tons. Dimensions: 143 × 20 × 5 feet. Guns: 2—3 inch, 2 M.G. Machinery: 2 sets Diesels. Speed: 14 kts. Strengthened for ice navigation.

*Note.*—Japanese names, *Kaiho, Koiryin.*



1934 *Official, added* 1936.

**HAI KUANG, HAI JUI, HAI JUNG, HAI HUA** (All Kawasaki, 1933.) Displacement: 45 tons. Dimensions: 85 × 12¾ × 3 feet. Guns: 1—57 mm., 2 M.G. Speed: 12 kts.

*Note.*—Japanese names, *Kaiko, Kaizui, Kaiei, Kaikwa.*

## Surveying Vessel.

(Name not reported). Launched in Japan during 1935. Dimensions: 56 (*o.a.*) × 14½ × feet. Machinery: 2 Kermath Diesels.

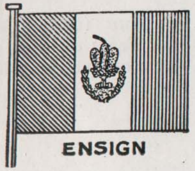
*Note.*—It is probable that other ships exist, but the foregoing are the only ones whose identity has been established. Names reported include *Shuan An, Shuan Kai, Tierhaipien, Tsifuhaipien, Jurasen, Shuntsu, Kokei, Konei, Suikai, Haiwang.* It is possible that some of these are transports. Information on this subject will be welcomed.

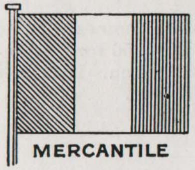
## Special Note.

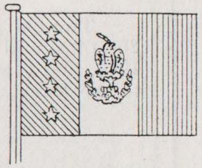
Two old gunboats, names reported as *Hi Ryu* (or *Hi Ma*), 200 tons, and *Hai Yen*, 56 tons, were seized at Taku on July 29, 1937, and towed to Dairen. It is believed they are to be added to the Manchurian Navy.

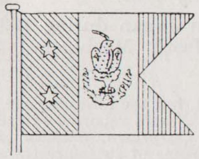
# MEXICO

## MEXICO


ENSIGN


MERCANTILE


SECRETARY OF WAR AND NAVY DEPTS.


OFFICER COMMANDING A DIVISION.

*Minister of War and Marine :* General Quiroga.
*Chief of Naval Staff :* Rear-Admiral O. P. Blanco.

Mercantile Marine (1937) :
54 vessels of 41,371 tons *gross.*

### Docks.

At Salina Cruz (Pacific Coast, Government dry dock, 664 × 79⅓ × 35½ feet (leased to Tehuantepec National Railway Co.)

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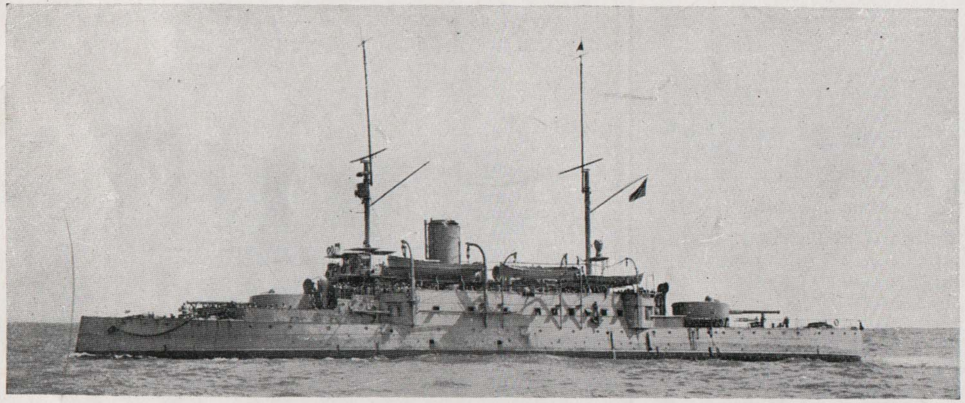
### Coast Defence Vessel (classed as *Cruçero*).


ANAHUAC. 1919, *Commander B. D. Holberton,* R.N.

**ANAHUAC** (ex-*Deodoro*, ex-*Ypiranga*, purchased from Brazil, 1924). Built at La Seyne, 1898.
Displacement : 3,162 tons. Complement, 200.
Dimensions : 267½ (*p.p.*) × 48 × 13¼ feet (*max.* draught).

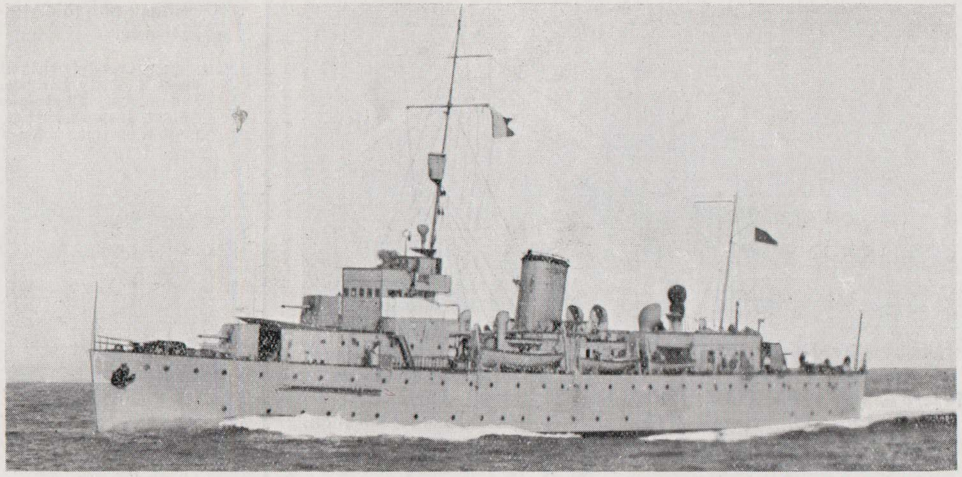
Guns :
- 2—9·4 inch, 45 cal.
- 4—4·7 inch, 50 cal.
- 4—6 pdr.

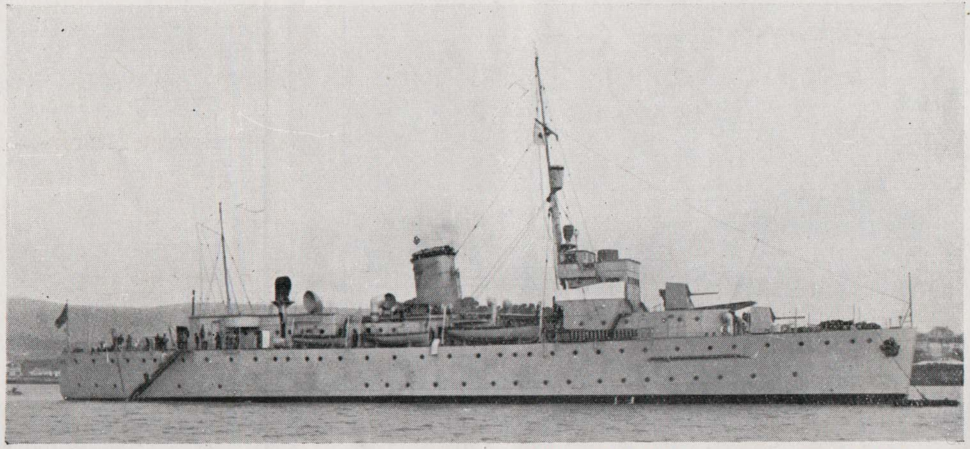
Armour (Harvey-nickel) :
- 13¾″ Belt (amidships)
- 4″ Belt (ends)
- 1½″ Deck (reinforcing belt)
- 8″ Turrets
- 3″ Casemates
- 5″ Conning tower.

Machinery : 2 sets triple expansion. 2 screws. Boilers : Babcock (converted to burn oil). Designed H.P. : 3,400 = 15 kts. Oil fuel : 440 tons.

*Gunnery control* : A few voice pipes only.

### Escort Vessels.


GUANAJUATO. 1936, *favour A. E. Kimberley, Esq.*

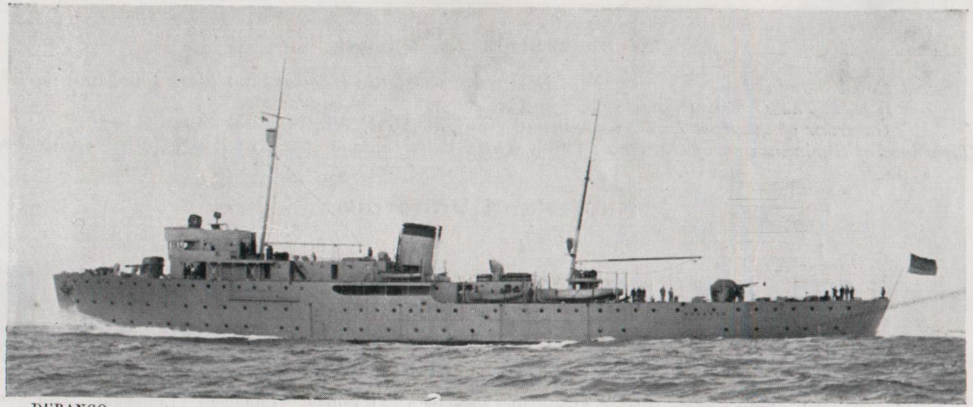

QUERÉTARO. 1935, *added* 1936, *courtesy Capitan M. Mille.*

**GUANAJUATO** (May 29, 1934), **QUERÉTARO** (June 29, 1934). (Both Societa Español de Construccion Naval, Ferrol), **POTOSI** (S.E. de C.N., Matagorda, Cadiz, August 24, 1934).
*Standard* displacement : 1,300 tons.
Dimensions : 260 × 37¾ × 10 feet.

Guns :
- 3—4 inch
- 4—25 mm. AA. (twin)
- 4—13 mm. AA. (twin mounts)

Machinery : Parsons geared turbines. 2 screws. S.H.P. : 5,000 = 20 kts. Yarrow boilers.

## Escort Vessels—*continued.*



DURANGO.

*1935, added 1936, courtesy Capitan M. Mille.*

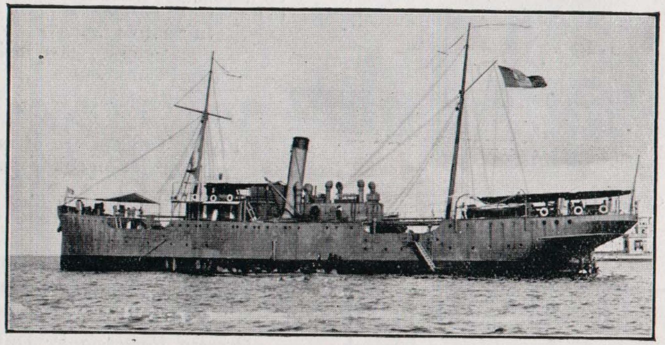
**DURANGO** (Union Naval de Levante, Valencia, June 28, 1935), **ZACATECAS** (Echevarrieta & Larrinaga, Cadiz, August 27, 1934).

*Standard* displacement: 1,600 tons. Dimensions: 282 × 40 × 10 feet.

Guns: 2—4 inch. 4—25 mm. AA. (twin mounts) 4—13 mm. AA. (twin mounts)

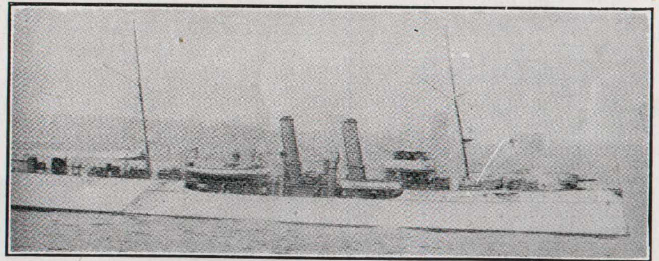
Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 6,500 = 20 kts. Yarrow boilers.

Accommodation for 40 officers, 450 men, 80 horses. Designed primarily as armed transports, these vessels carry a weaker armament than *Potosi* class.



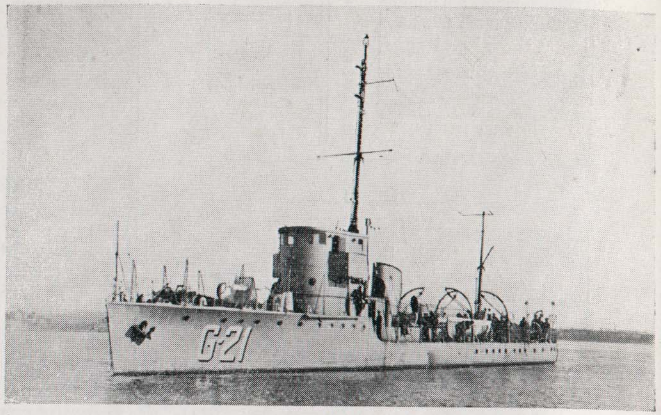
*1925 Photo, by courtesy of Captain Julio Morales Coello, C.N.*

**PROGRESO** (Odero, 1907). 1,590 tons. Dimensions: 230 × 36½ × 11 feet. Guns: 4—6 pdr. H.P. 1400 = 13 kts. Coal: 209 tons. (Classed as a Transport.)



**NICOLAS BRAVO** (Odero, 1903). 1227 tons. Dimensions: 242 × 34 × 9¾ feet. Guns: 2—4 inch, 4—6 pdr. H.P. 3000 = 12·25 kts. 2 screws. Oil fuel: 226 tons. Complement, 130.

## Gunboats (*Cañoneros*).



*1935, courtesy of Capitan M. Mille.*

10 *vessels*: Nos. **G** 20–29 (Compania Euskalduna de Construccion, Bilbao, 1934–35. Displacement: 130 tons (*standard*), 180 tons (*full load*). Dimensions: 147½ (*p.p*), 153 (*w.l.*) × 16½ × 5¼ feet (*mean*). M.A.N. Diesels. H.P.: 3000 = 26 kts. 2 screws. Guns: 2—25 mm. AA. (forward), 4—13 mm. AA. (aft) (twin mounts). Complement, 21.

## 4 Patrol Vessels (*Guardacostas*).

**TAMPICO, MAZATLAN, ACAPULCO** (ex-*Salinas*), **VERA CRUZ.** All are ex-trawlers purchased in Canada 1920. Built 1918. 486 tons. Dimensions: 133 × 24 × 13½ feet. Guns: 1—6 pdr., 2 M.G. I.H.P. 557 = 8 kts. Coal: 208 tons.

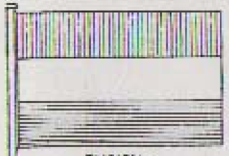
## 3 Vessels under control of Free Ports Department.

**COAHUILA, JALISCO** (Cramps, Philadelphia, 1916). 2,876 tons *gross*. Displacement: 5,794 tons. I.H.P. 1,350 = 10·5 kts. Oil fuel.

**MEXICO** (W. Hamilton & Co., Port Glasgow, 1913). Oil tanker. 2,559 tons *groes*. Oil fuel.

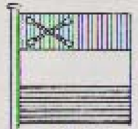
*Note.*—Above ships are available for transport service when required.

# NETHERLANDS.

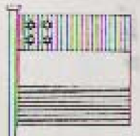


ENSIGN.

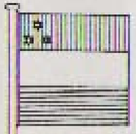
& MERCANTILE



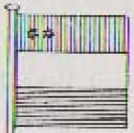
ADMIRAL OF THE FLEET



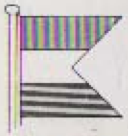
ADMIRAL



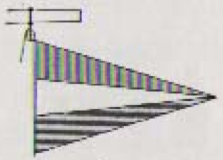
VICE-ADMIRAL



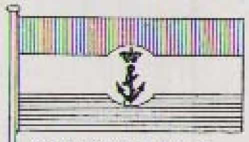
REAR-ADMIRAL



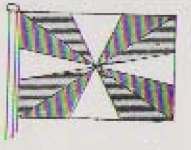
CAPTAIN COMMANDING DIVISION



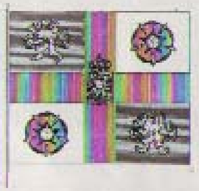
SENIOR NAVAL OFFICER



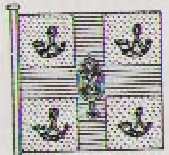
ROYAL NAVAL RESERVE.



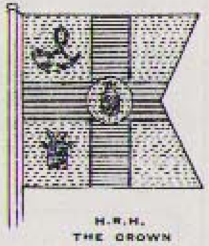
JACK



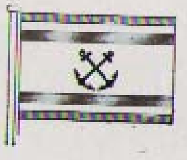
PRINCE CONSORT



ROYAL STANDARD H.M. THE QUEEN



H.R.H. THE CROWN PRINCESS.



MINISTER OF DEFENCE

Officers commanding Flotillas fly a yellow pendant with black letter D in centre, from signal yard.

### Naval Guns

| | Cal. inch | Cal. cm. | Official Mark No. | Length, cals. | Weight of Shell | Initial Vel. ft. secs. | K = Krupp, B = Bofors, F = Wilton-Fijenoord |
|---|---|---|---|---|---|---|---|
| HEAVY | 11 | 28 | — | 42½ | 595 | 2920 | *Soerabaja*, K. |
| | 9·4 | 24 | 1· | 40 | 375 | 2780 | *Hertog Hendrik*, K. |
| MEDIUM | 5·9 | 15 | 11 | 50 | 101½ | 2953 | Double mounting. *Tromp* class, A.A., F. |
| | 5·9 | 15 | 10 | 50 | 101½ | 2953 | Single, *De Ruyter*, A.A., F. |
| | 5·9 | 15 | 9 | 50 | 101½ | 2953 | Turrets, *De Ruyter*, A.A., F. |
| | 5·9 | 15 | 7, 8 | 50 | 101½ | 2953 | *Flores* class, *Johan Maurits*, B. |
| | 5·9 | 15 | 6 | 50 | 101½ | 2953 | *Java*, *Sumatra*, B. |
| | 5·9 | 15 | 5 | 40 | 90½ | 2788 | *Soerabaja*, K. |
| | 5·9 | 15 | 3 | 40 | 90½ | 2444 | *Hertog Hendrik*, K. |
| | 4·7 | 12 | 7 | 50 | 53 | 2144 | Double mounting. New destroyers, A.A., F. |
| | 4·7 | 12 | 6 | 50 | 53 | 2950 | *Van Kinsbergen*, new minelayer, A.A., F. |
| | 4·7 | 12 | 4, 5 | 50 | 53 | 2950 | Destroyers, B. and F. |
| | 4·7 | 12 | 2, 3 | 40 | 52 | 2231 | *Gelderland*, *Jan v. Amstel* class, gunboats, K. |
| LIGHT | 4·1 | 10·5 | 1 | 50 | 39½ | 2897 | *Brinio* class, semi-automatic, K. |
| | 3·5 | 8·8 | 1, 2, 3 | 45 | 22 | 2625 | Submarines, A.A., B. and F. |
| | 3· | 7·5 | 6, 7, 8, 9 | 52 | 13 | 2936 | A.A., B. |
| | 3· | 7·5 | 5 | 18 | 13 | 1148 | Submarines, B. |
| | 3· | 7·5 | 4 | 30 | 13 | 2034 | Torpedo boats, K. |
| | 3· | 7·5 | 2, 3 | 40 | 13 | 2231 | K. |
| | 3· | SA. 7·5 | 4, 5 | 52 | 13 | 2936 | A.A. semi-automatic, B |
| | 3· | SA. 7·5 | 1, 2, 3 | 52 | 13 | 2936 | Semi-automatic, K. |
| | 2· | SA. 5· | — | 52 | 3·9 | 2936 | *Hadda* class, K. |
| | 1·5 | 4 | 3 | 60 | 2· | 2953 | Twin mount, A.A., automatic, B. |
| | 1·5 | 4 | 1, 2 | 40 | 2· | 1975 | Single mount, AA., automatic, B. |
| | 1·4 | 3·7 | — | 30 | 1· | 1358 | |

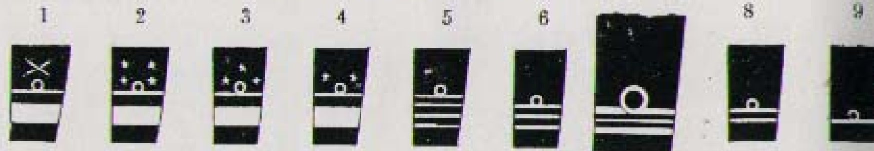
### Notes to Flags.

*Royal Standard* } Colours of these are *Nassau* blue (*dark* blue) and *dark* orange.
*H.R.H. The Crown Princess* }

*Governor of the East Indies*:—A broad pendant (Red, White, Blue) above Ensign.

*Governors of Surinam and of Curaçao*: Three white balls replace stars, in flag of Vice-Admiral's type.

### Netherland Uniforms.



| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| | Admiraal | Luitenant-Admiraal | Vice-Admiraal | Schout by-nacht | Kaptein ter Zee | Kaptein Luitenant ter Zee | Luitenant ter Zee 1e Kl. | Luitenant ter Zee 2e Kl. | Luitenan ter Zee 3e Kl |
| Corresponding to British | *Admiral of the Fleet* | *Admiral* | *Vice-Admiral* | *Rear-Admiral* | *Captain* | *Commander* | *Lieut.-Commander* | *Lieutenant* | *Sub.Lieu* |

In relative ranks—

Doctors have insignia 5 to 9 without the curl.

Paymasters " 5 to 9 " in silver.

Engineers " 5 to 9 with the curl, and are to be distinguished by the badge of a torch crossed by two arrows on the collar, instead of the usual anchor.

Flying Officers are of ranks 7, 8 and 9, and are to be distinguished by the badge of an aeroplane propeller on collar instead of the usual anchor. R.N. Reserve Officers are of ranks 6, 7, 8, and 9.

### Notes.

All displacements are "Standard."

*Personnel*: About 11,750 all ranks, navy and marine infantry, including Officers, both at home and in E. Indies.

*Oversea Possessions*: Dutch East Indies (Sumatra, Java, Borneo, etc.); Dutch Guiana (Surinam), Curaçao, Bonaire, Aruba, Saba, St. Eustatius and St. Martin.

*Minister of Defence*: J. J. C. van Dijk.

*Naval Attaché, London*: Lieut.-Com. A. de Booy.

*Form of Address*: Hr. Ms. "(Name of Ship)"

*Chief of the Naval Staff*: Rear-Admiral J. Th. Furstner.

*Chief of Naval Dept., E. Indies*: Rear-Admiral H. Ferwerda.

*Colour of Ships*: Greyish Blue, *except* Submarines, painted Dark Green in home waters and Black in E. Indies.

Переданы Ан

1 [illegible] АВ (Nairana) - Ka

ЭМ - 6

ПЛ - 5

ТК - 8

Тщ - 28

ОХОТ ПЛ - 14

Только [illegible]

[illegible]

### Mercantile Marine.

From "Lloyd's Register" 1937 figures.

1,416 Vessels of 2,634,321 gross Tonnage.

### Defence Estimates, 1937.

| | | |
|---|---|---|
| Naval Construction | 169,000 florins. | |
| Ordinary Expenses | 80,037,751 " | (Navy and Army). |
| Non-military Expenses | 4,639,247 " | |
| | 84,845,998 " | |

In addition, a special Defence Fund of 53,400,000 fl. was provided in 1936 for re-armament purposes.

VI-49 КрЛ De Zeven Provincien
De Ruyter
заложен 39 спущен 49? } 8350т 33уз 8-150 2-III
8-57 533
8-40

## NEW CONSTRUCTION.

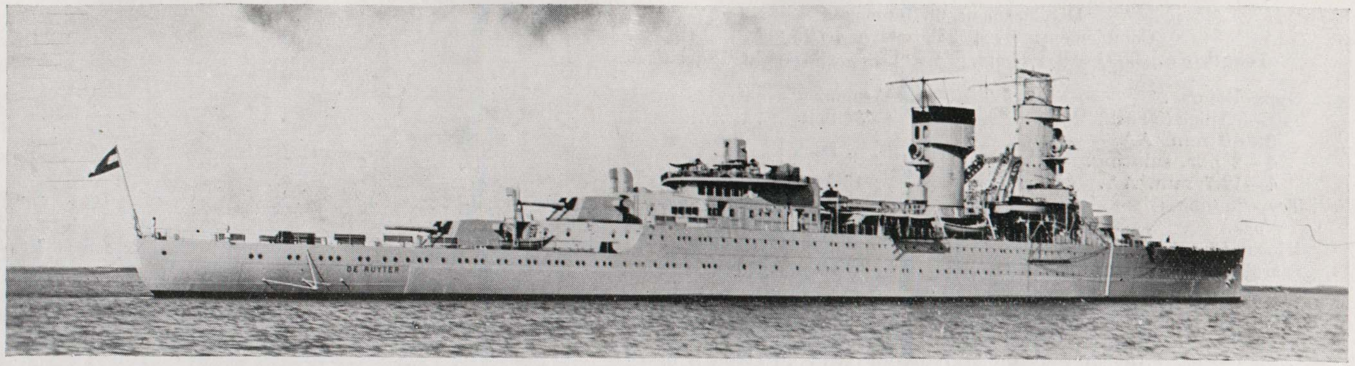
A cruiser of 8,000 tons displacement, with **10**—5·9 inch guns in four turrets and **12**—40 mm. AA. Speed: 33 kts.: will be ordered in 1938.

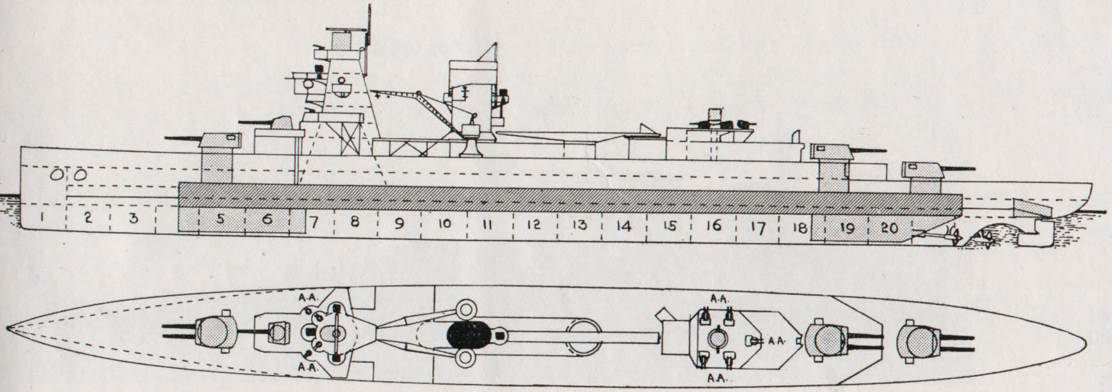
**DE RUYTER** (Wilton-Fijenoord Co., Rotterdam, May 11, 1935).
Displacement: 6,450 tons *standard*, 7,548 tons *full load*.
Complement: 435.
Length: 551 (*p.p.*), 557¾ (*o.a.*) feet. Beam: 51¼ feet. Draught: 16½ feet (*mean*), 19¼ feet (*max.*).

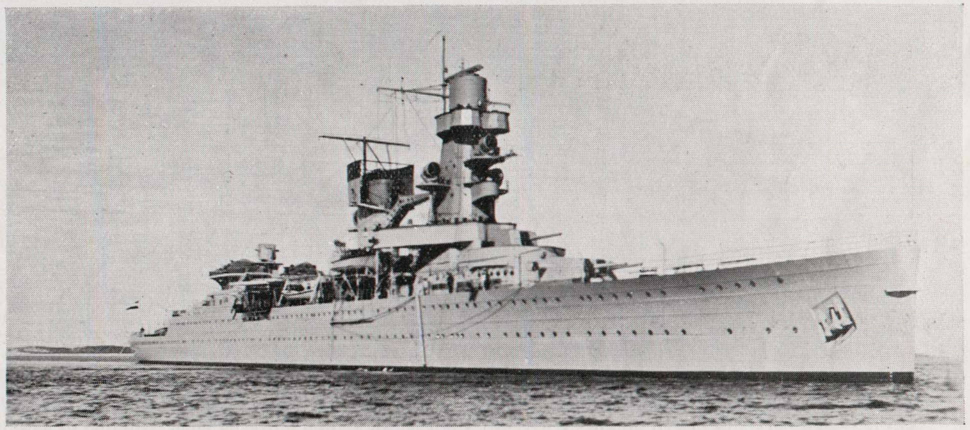
| Guns: (Wilton-Fijenoord) | Armour: |
|---|---|
| **7**—5·9 inch, 50 cal. | 2″—3″ side. |
| **10**—40 mm. AA. (twin mounts). | 1¼″ deck. |
| **8**—12·7 mm. AA. (twin mounts). | 1″ control positions. |
| **4**—M.G. | |

Aircraft:
2, with catapult.

Machinery: 2 sets Parsons geared turbines. 2 shafts. S.H.P.: 66,000 = 32 kts. 6 Yarrow boilers, working pressure 400 lbs. Oil: 1,000 tons. Radius of action: 5,000 miles at 12 kts.


1936, *W. Crone.*




1936, *W. Crone.*

*General Notes.*—This ship was projected for a number of years as a third unit of the *Java* class to be named *Celebes*. She was ultimately laid down in November, 1933, completed in May, 1936, and placed in full commission Oct. 4, 1936. A considerable amount of electric welding was used in her construction. Echo sounding gear and loud speakers for transmitting orders are included in equipment.

*Armour Notes.*—Belt begins 85 feet from the bows and ends 65 feet from the stern, and is 13 feet wide.

*Aircraft Note.*—Carries two Fokker C. 11 W. type seaplanes, fitted with Wright Cyclone engines, on platform abaft funnel.

*Gunnery Notes.*—All the 5·9 inch guns elevate to 60° and can be used as anti-aircraft weapons.

*Engineering Notes.*—Under tropical conditions a speed of 33 knots has been realised, only a knot below the original trial figure.

De Ruyter. 1936, *courtesy Wilton-Fijenoord (Builders).*

2

## **JAVA** (Aug. 6th, 1921) & **SUMATRA** (Dec. 29th, 1920).

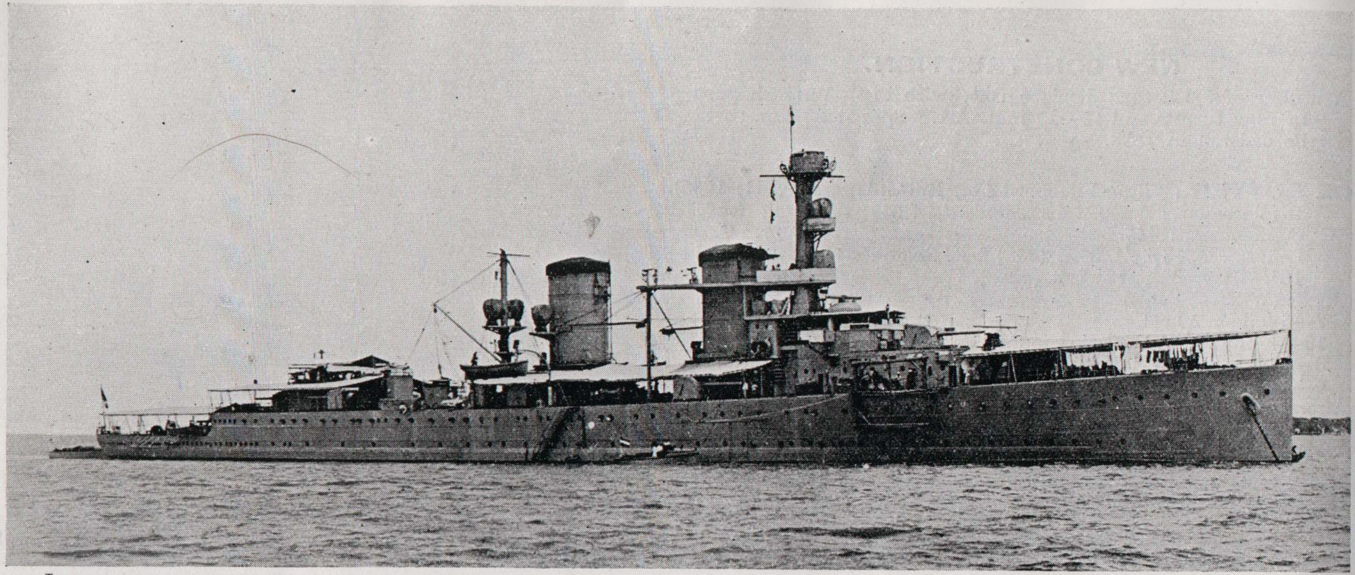
Displacement, 6670 tons.
Complement, 287 + 238 natives = 525.
Length (*o.a.*), 509½ feet. Beam, 52½ feet. *Max.* draught, 18 feet.

Guns (Bofors):
- **10**—5·9 inch (50 cal.) "No. 6."
- **6**—40 mm. AA.
- **4**—2 pdr. saluting.
- **4**—12.7 mm. AA.

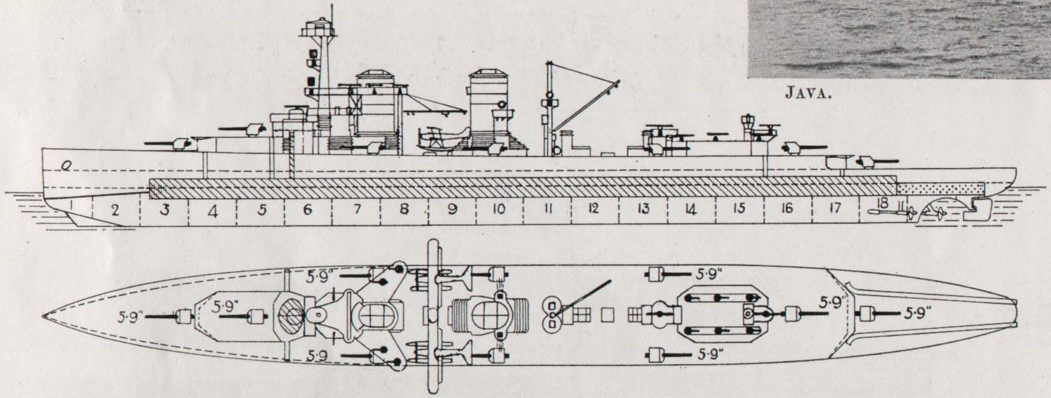
Torpedo tubes: *None.*
Mines: 12.
Searchlights: 6—47 inch.
Paravanes: 4.
Range Finders: 4.
Aircraft: 2.

Armour (Coventry):
- 3″ Belt ...............
- Deck { 1″ flat / 2″ slopes
- 4″ Gun shield faces (much thinner at sides and roof)
- 2″ Funnel bases ...
- 5″ Conning tower

*Note.*—*Java* is at present under refit, and will be given a new director tower and AA. armament on lines similar to *De Ruyter's*.



JAVA. 1935, *courtesy Ir. R. F. Scheltema.*



Machinery: 3 sets Krupp-Germania turbines. 3 screws. Boilers: 8 Schulz-Thornycroft. Designed H.P., 72,000 = 31 kts. Fuel, oil only: *normal*, 1000 tons; *maximum*, 1200 tons. Radius of action: 4800 miles at 12 kts., 3600 miles at 15 kts.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* | *Boilers* | *Best recent speed* |
|---|---|---|---|---|---|---|---|
| *Sumatra* | Nederlandsche Scheepsbouw Maatschappij, Amsterdam | Krupp, Germania | July,'16 | Nov. 1925 | 82,000 = 31.8 | Schulz | 30·3 |
| *Java* | K. M. de Schelde, Flushing | Krupp, Germania* | May,'16 | May 1925 | 73,000 = 31·5 (St. Abbs, 7/7/25) | Schulz | |

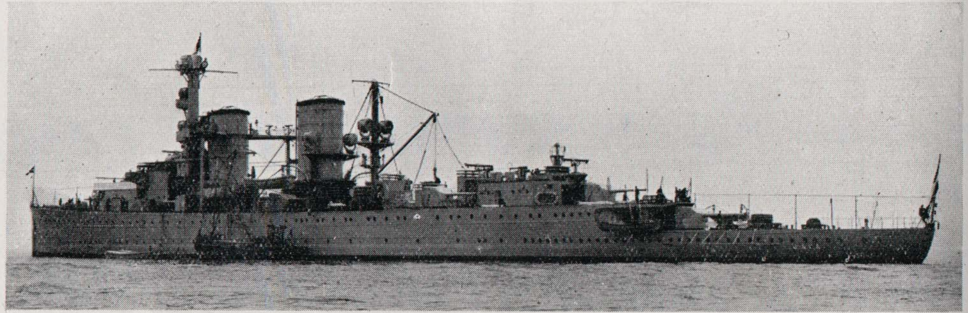
* Contracted for, June, 1917.

*General Notes.*—The German design of these ships remains more evident than ever as the result of a big refit completed in 1935. Mainmast has been dwarfed to the stature of a derrick post and stepped in a fresh position, further forward, while a new tubular foremast, with director tower and searchlight platform, has been installed. Flag deck now extends along both sides of the fore funnel, 2 M.G. being mounted on each wing.

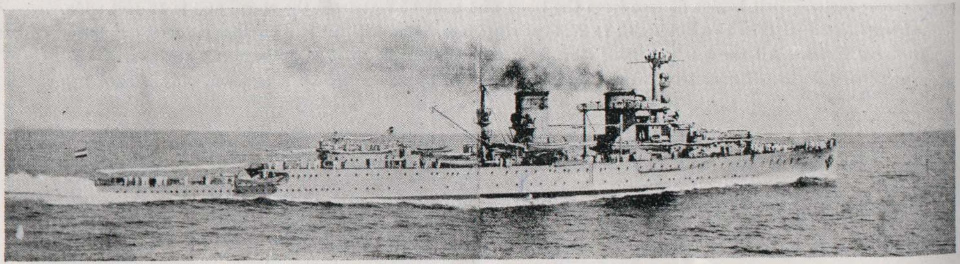
Of the two, the *Java* is decidedly the more successful ship. As the outcome of recurring engine-room troubles, a fire in 1929 and a stranding in 1931, the *Sumatra* has spent a large proportion of her life in dockyard hands. But after last refit she exceeded 28 kts. with four-fifths power at full load displacement, under tropical conditions.

*Gunnery Notes.*—5·9 inch guns elevate to 25–30°. Electric hoists.

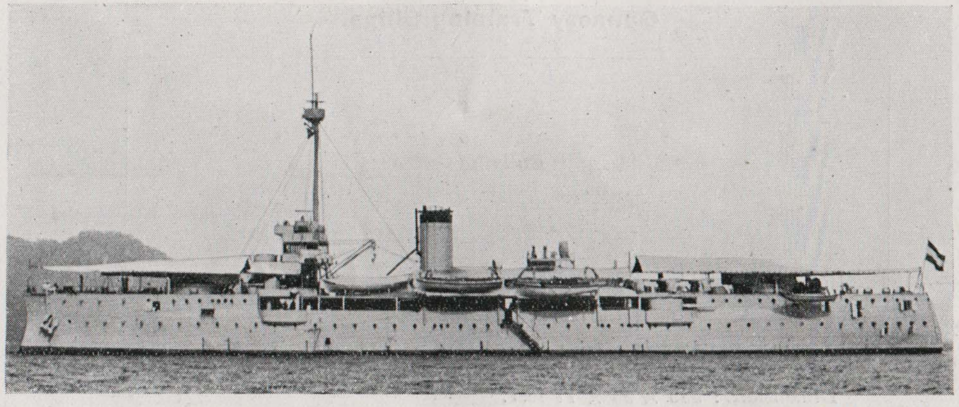
*Armour Notes.*—C.T. divided into gunnery control and navigation compartments. 3″ belt is 392½ feet long. Towards stern and over steering gear, belt is narrower for a length of 42½ feet, and is only 2″ thick.



JAVA. 1937, *Fighting Ships.*



SUMATRA. 1936.



1937, *Official*.

## SOERABAJA, (*ex-De Zeven Provincien*) (March, 1909).

Displacement: 5,644 tons. Complement: 180 + 300 cadets and boys.

Length (*o.a.*), 333 feet. Beam, 56 feet. *Maximum* draught, 20¼ feet.

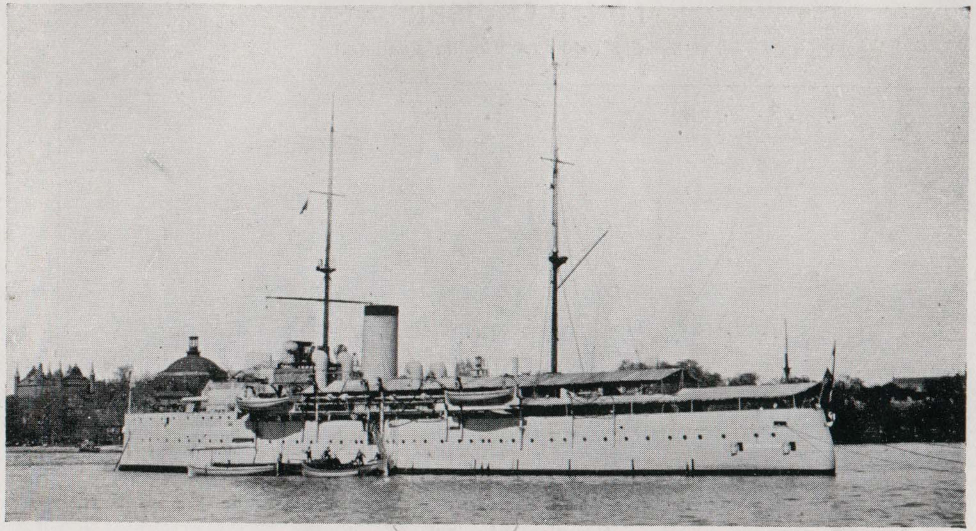
Guns (Krupp):
- **2**—11 inch, 42½ cal.
- **2**—5·9 inch, 40 cal. "No. 5."
- **8**—3 inch, 55 cal. S.A. "No. 1."
- **4**—1 pdr.
- **2** machine.

Torpedo tubes:
- *None.*

Armour (Krupp):
- 6″ Belt (amidships)
- 4″ Belt (ends)
- 2″ Deck (on slopes)
- 9¾″ Main Barbettes (N.C.)
- 9¾″ Shields
- 4″ Small Barbettes
- 7¾″ Conning tower (N.C.)

Machinery: 2 sets triple expansion. 2 screws. Boilers: 3 Yarrow. Designed H.P.: 8,000 = 16 kts. (Trials: 8,516 = 16·3 kts.) (with 8 boilers). Fuel now oil only.

*Notes.*—Main belt is 7 feet wide. Laid down Feb., 1908 at Amsterdam D.Y. No longer included in active list. Renamed Oct. 21, 1936, and fitted out as a Training Ship. Stationed in E. Indies.



1936, *Hr. Registrator, Ossi Janson.*

## HERTOG HENDRIK (1902).

Displacement, 4,560 tons. Complement, 325.

Length (*p.p.*), 312 feet; (*o.a.*), 317 feet. Beam, 50 feet. *Maximum* draught, 19 feet.

Guns (Krupp):
- **1**—9·4 inch, 40 cal. "No. 1."
- **4**—5·9 inch, 40 cal. "No. 3."
- **4**—3 inch, "No. 3."
- **4**—1 pdr.
- **4**—40 mm. AA.

Armour (Krupp):
- 6″ Belt (amidships) ......
- 4″ Belt (ends)...............
- 2″ Deck (reinforcing belt)
- 9¾″ Barbettes...............
- 4″ Hoods to these .........
- 9¾″ Conning tower (fore)

Machinery: 2 sets triple expansion. 2 screws. Boilers: 6 Yarrow. Designed H.P. 6300 = 16 kts. Coal: *normal* 680 tons; *maximum* 830 tons.

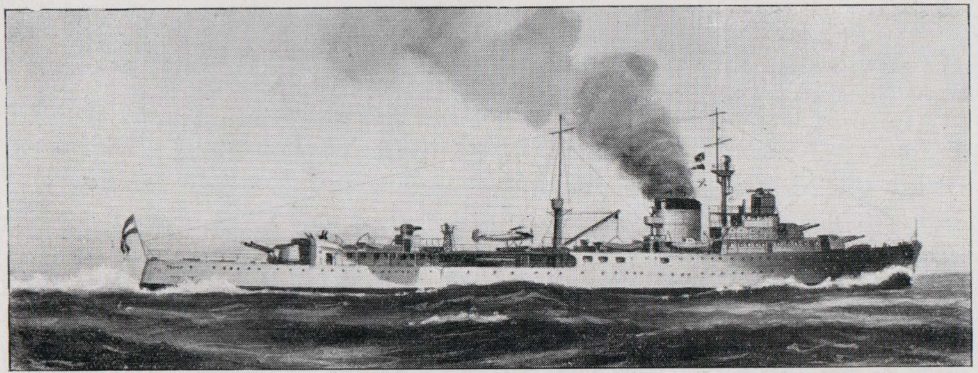
*General Notes.*—Begun 1900 at Amsterdam D.Y.

*Gunnery Notes*—Armament reduced, 1926, by removal of 1—9·4 inch and several smaller guns, on appropriation as Cadets' Training Ship.

*Armour Notes.*—The belt is 5¾ feet wide and four feet of it is below the waterline. Gratings to engine room hatches are 4·7 inches thick.

## LIGHT CRUISERS.

(Officially rated as Flotilla Leaders.)



1936 *Illustration.*

**TROMP** (May 24, 1937), and another (authorised.)
Displacement: 3,350 tons *standard*; 4,215 tons *full load.*
Complement: 309.

Length, (*p.p.*) 426½ feet; (*o.a.*) 433 feet. Beam, 40¾ feet. *Maximum* draught, 15 feet.

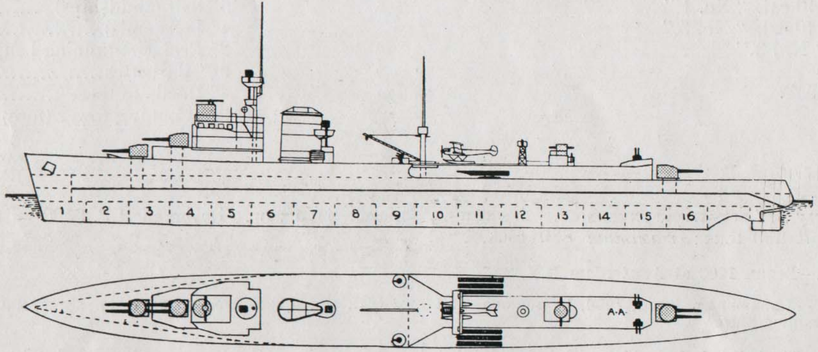
Guns: (Bofors)
- 6—5·9 inch, 50 cal.
- 4—40 mm. AA. (2 pdr.) (twin mounts)
- 4—12·7 mm. AA. (twin mounts)
- 4—D.C.T.

Armour:
- 2″ Vert. Side
- 1″ Deck.

Torpedo Tubes:
- 6—21 inch (tripled).

Aircraft:
- 1, handled by derrick.

*Notes to Plan.*—Rig reported modified as in silhouette. 2 S.L. abaft funnel.



Machinery: Parsons geared turbines. 2 shafts. Designed H.P.: 56,000 = 32·5 kts. Boilers: 4 Yarrow. Oil: 860 tons.

*Notes.*—*Tromp* authorised in 1931, and laid down in January, 1936, by Nederlandsche Scheepsbouw Mij., Amsterdam. Machinery by Werkspoor. Much aluminium employed in internal construction. Cost 7,700,000 gulden. Was originally to have been a flotilla leader of 2,500 tons, but design was expanded to present dimensions. Will replace *Hertog Hendrik* when completed. Second ship to be begun in 1938 as replacement of *Heemskerk*, already discarded.

*Gunnery Notes*—The 5.9 inch guns have 60° elevation and can be used as AA. weapons.

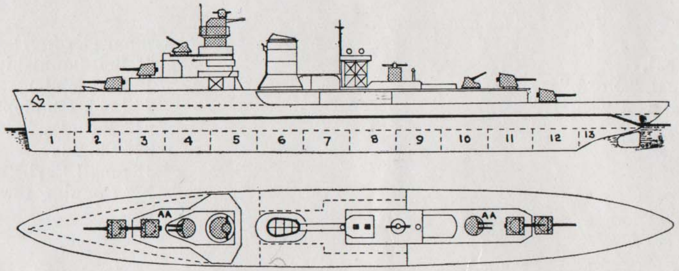
## Gunnery Training Ships.

*Building*

**VAN KINSBERGEN.** (Ordered from Rotterdam Dry Dock Co., Nov., 1936.)
*Standard* displacement: 1,760 tons (2,100 tons *full load*). Complement: 190.
Dimensions: 338 × 38 × 11 feet.

Guns:
- 4—4·7 inch.
- 4—40 mm. AA. (twin mounts)
- 4—12·7 mm. AA. (twin mounts).

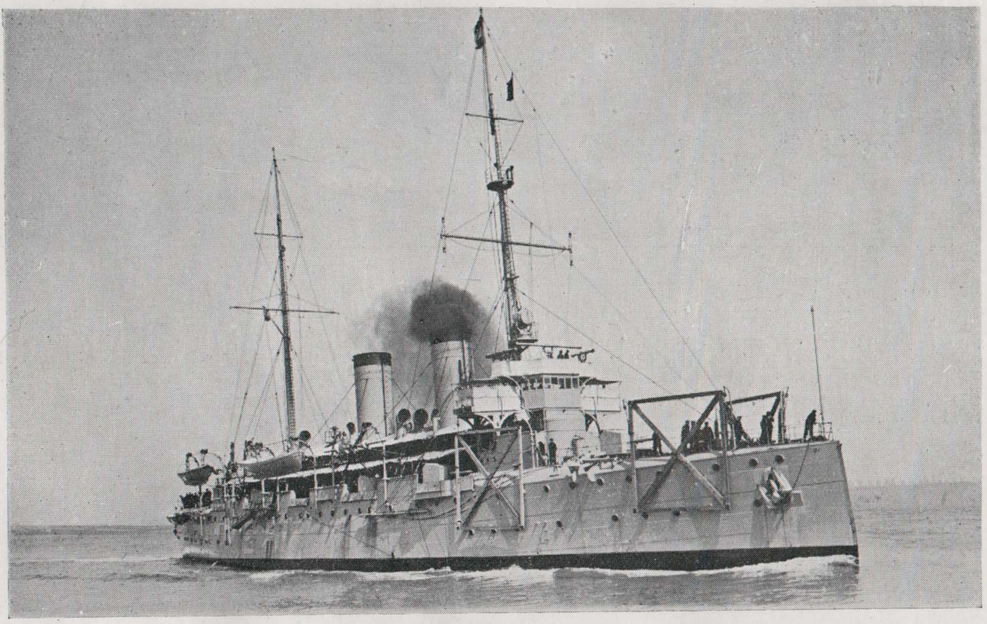
Armour:
To be given slight protection, probably confined to armoured deck and C.T.



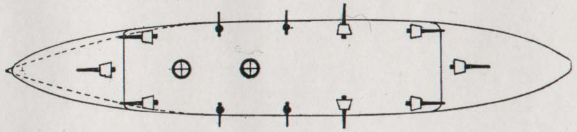
Machinery: Geared turbines by Gebr. Stork. H.P.: 16,000 = 25·5 kts. Boilers: 2 Yarrow.

*Note.*—Will relieve *Gelderland* when completed.

## Gunnery Training Ships—*continued.*



GELDERLAND. 1932 *Photo.*



**Gelderland** (1898). 3,512 tons.
Guns : **8**—4·7 inch, **4**—3 inch.
**2**—37 mm., **7** M.G.

Reboilered 1934–35, and can make 16 kts.

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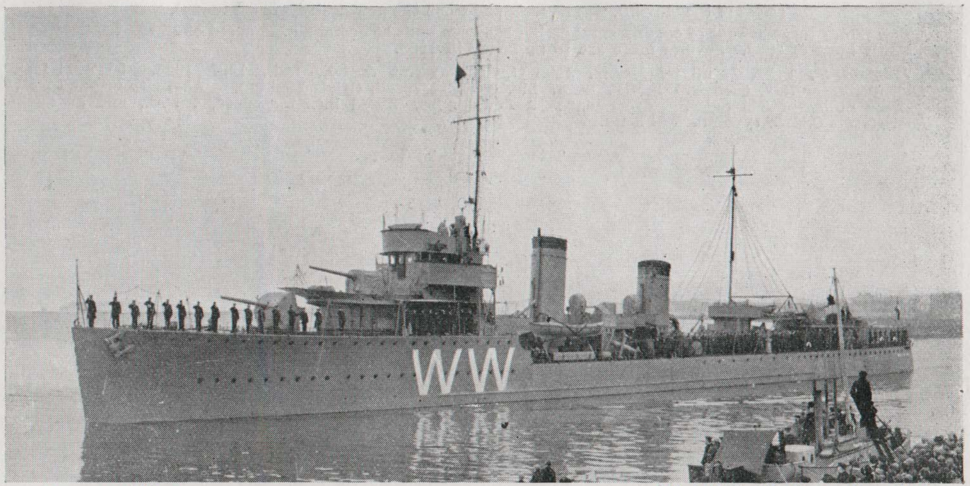
[illegible] Заказаны 48 г. 6 ЭМ для ППД 2097 т 4-120 8-40 авт. без торп. ап

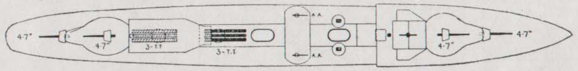
## 8 +*4* (*Authorised*) Destroyers (*Jagers*)

***Callenburg, Tjerk Hiddes.*** Both to be ordered by end of 1937 (probably from Wilton-Fijenoord, and 2 more in 1938. Particulars not yet released, but are expected to be of about 1,500 tons displacement and armed with **5** (or more) 4·7 inch guns. It is possible that a seaplane may be included in equipment.

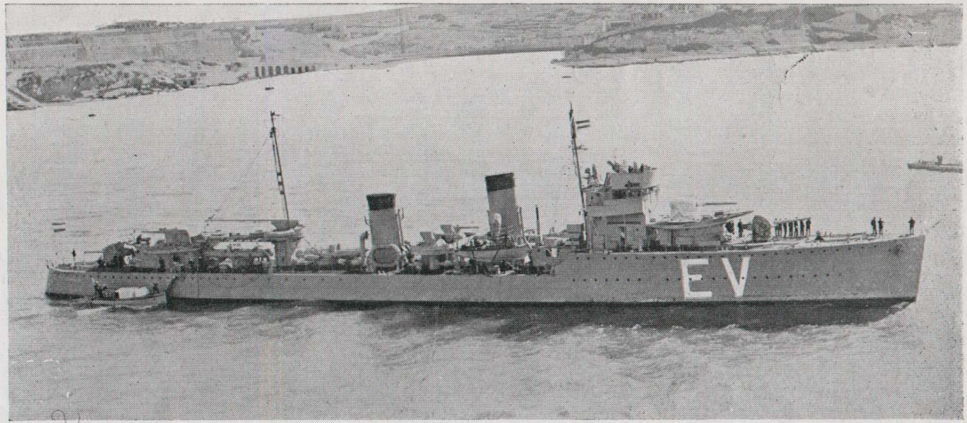
## Destroyers—*continued.*



WITTE DE WITH. *Added* 1935, *W. Crone, Den Helder.*



4 *Yarrow* type ; ***Van Galen*** (June 28, 1928), ***Witte de With*** (Sept. 11, 1928), both by Mij. Fijenoord. ***Banckert,*** (1929), ***Van Nes*** (1930), both by Burgerhouts. Displacement : 1,316 tons *standard*, 1,650 tons *full load*. Complement, 120. Dimensions : 307 (*p.p.*), 322 (*o.a.*) × 31¼ × 10 feet (*max.* draught). Guns: **4**—4·7 inch, 50 cal., **1**—3 inch AA. **4**—40 mm. AA., **4**—12·7 mm. AA., **1** M.G., **4** D.C.T. Tubes : **6**—21 inch (tripled). Machinery : Hochdruck geared turbines. 2 shafts. S.H.P. : 31,000 = 36 kts. Boilers : Yarrow, 400 lbs. pressure. Oil : 330 tons.



EVERTSEN. 1935, *Grand Studio, Malta.*

4 *Yarrow* type : ***Van Ghent*** (ex-*De Ruyter*) (Oct. 23, 1926), built by K. M. de Schelde, Flushing : ***Evertsen*** (Dec. 29, 1926), ***Kortenaer*** (June 30, 1927), ***Piet Hein*** (April 2, 1927), all three by Burgerhouts, Rotterdam. Displacement : 1,310 tons *standard*, 1,640 tons *full load.* Complement, 129. Dimensions : 307 (*p.p.*), 322 (*o.a.*) × 31¼ × 10½ feet *max.* draught. Guns : **4**—4·7 inch, 50 cal., **2**—3 inch AA., **4**—12·7 mm. AA., **1** M.G., **4** D.C.T. 24 mines, with double laying gear. Tubes: **6**—21 inch. Machinery: Parsons geared turbines. 2 shafts. S.H.P. : 31,000 = 36 kts. *light*, 34 kts in *loaded* condition. Boilers : Yarrow, 250 lbs. pressure. Oil : 300 tons. On trials, at 80 per cent of full load displacement, speeds of from 35 to 36 kts. were realised without difficulty.

*Identification letters*—VG—Van Galen.
GT—Van Ghent.
EV—Evertsen.
WW—Witte de With.
KN—Kortenaer.
BK—Banckert.
PH—Piet Hein.
VN—Van Nes.

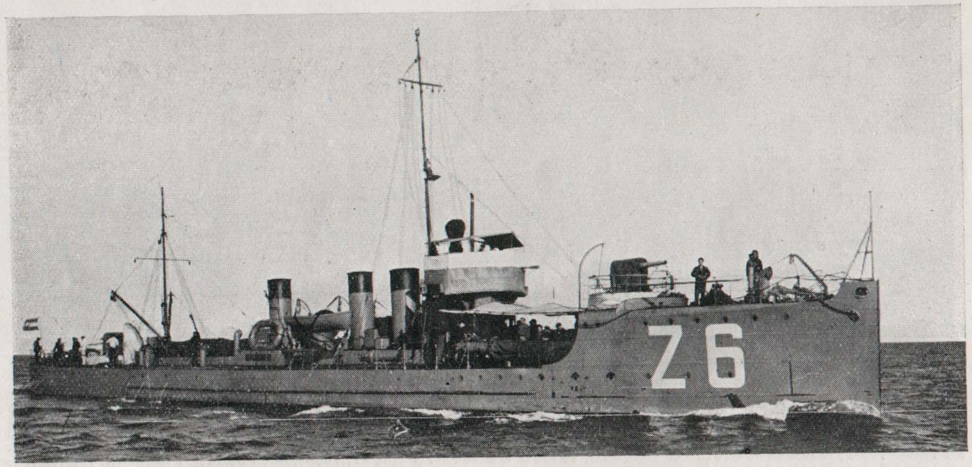
*Appearance Notes.*—First four boats have S.L. abeam of fore funnel. Later ones have S.L. *en echelon* between funnels.

# 12 Torpedo Boats (*Torpedobooten*).

(Most of the old T.B. will be scrapped when the new destroyers are ready).

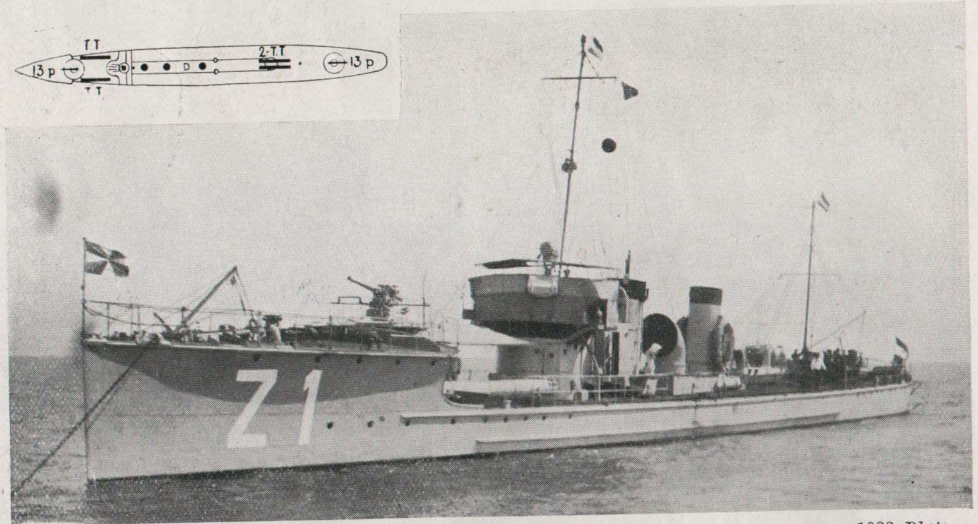
A new motor torpedo boat of experimental design has been built at Soerabaja. A speed of 42 kts. is expected from her. She is built of steel. Several more are to be begun in 1938.

***T.M. 1, T.M. 2, T.M. 4,*** all by Messrs. John I. Thornycroft & Co., Ltd., 1927–1928. 55 × 11 feet. 2 Thornycroft motors, each 375 B.H.P. = 37 kts. contract speed, (trials 39 kts.). Auxiliary engine to give a cruising radius of 800 miles. Armament: 2 Lewis guns, 2—18 inch torpedoes, 4 D.C., and an outfit of Thornycroft C.M.B. type Smoke Floats.



1932 *Photo.*

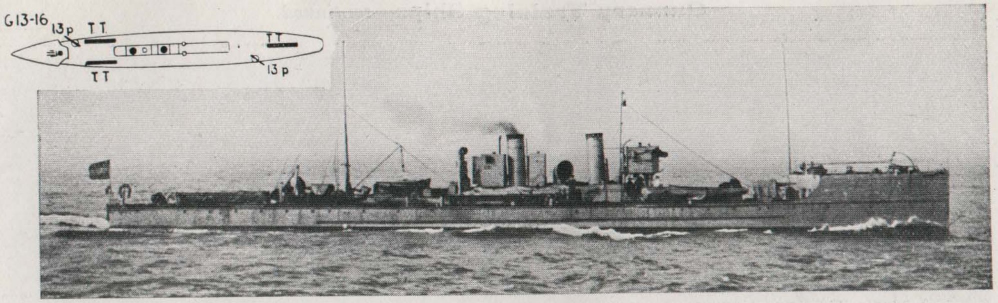
3 boats, ***Z 8, Z 7, Z 6*** (K. M. de Schelde, Fijenoord, 1915). 263 tons, Dimensions: 193 × 19⅔ × 5½ feet. Guns: 2—3 inch, "No. 4," 2 Machine. Torpedo tubes: 4—17·7 inch (one twin deck mounting, 2 single ditto). Designed H.P. 5,000 to 5,500 = 27 kts. (made about 27·4 on trials). Machinery: Reciprocating. Boilers fitted to burn coal or oil. Carry 80 tons coal + 7 tons oil. Radius of action: 425 miles at 20 kts. Complement, 48. Completed 1916.



1933 *Photo.*

Z3 similar to above.

***Z 3*** (Ned. Scheepsb. Mij., Amsterdam, 1916-17.). 277 tons. Dimensions: 201 × 20⅓ × 6 feet. Guns: 2—3 inch. "No. 4." 2 machine. Torpedo tubes: 4—17·7 inch (one twin deck mounting + 2 single ditto). Designed S.H.P. 5500 = 27 kts. Curtis type turbines. Boilers fitted to burn coal or oil. Carry 72 tons coal + 9·4 tons oil. Radius of action: 425 miles at 20 kts. Compl. 48.



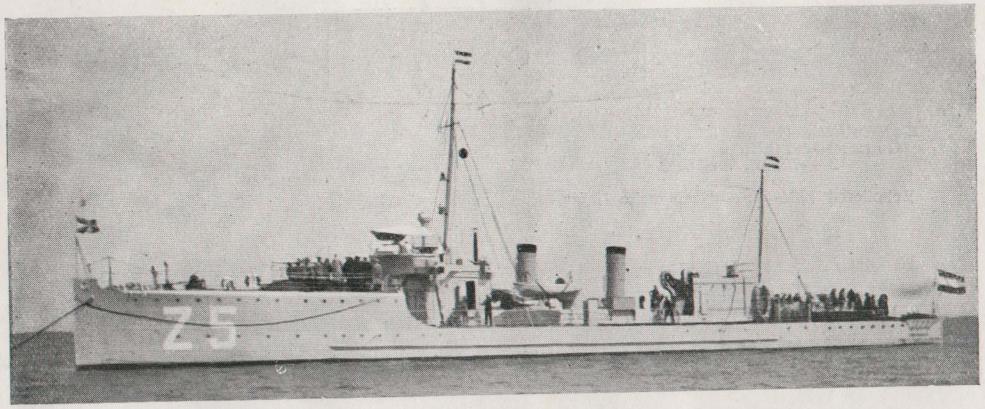
G13.

1919 *Photo, Fotopersbureau "Holland," Amsterdam.*

*(Now only used for Subsidiary Duties in Harbour.)*

3 boats ('12-'14): ***G 16, G 15*** (Fijenoord Co., Rotterdam, 1914), ***G 13*** (K. M. de Schelde, Flushing, 1913), 180 tons. Dimensions: 162·4 × 17 × 4·6 feet. Armaments: 2—3 inch, "No. 4," 3—17·7 inch deck tubes. Designed H.P.: 2,600 = 25 kts. (26 kts. on trisls). Coal: 44 tons. Complement: 27.

G 13. used as Stokers' Training Ship.
G 15. used as Tender.



Z5.

1932 *Photo.*

***Z 5*** (De Schelde Vlissingen, 1913). 263 tons. Dimensions: 193 × 19·8 × 5·6 feet. Guns: 2—3 inch, 2 M.G. Speed now about 22 kts. Oil fuel 100 tons. Complement, 34.

*Notes.*—Originally as *Z* 8. Refitted for patrol work 1932, with lengthened forecastle; foremost boiler removed; additional bunker space. Is employed as a Tender.

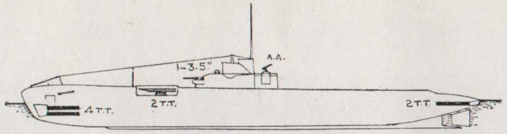
*Notes.*—" *O* " numbers are Home Service; " *K* " numbers, East Indies. Displacements given are *standard*. All are double-hull design except *O* 7 and *K* 7.

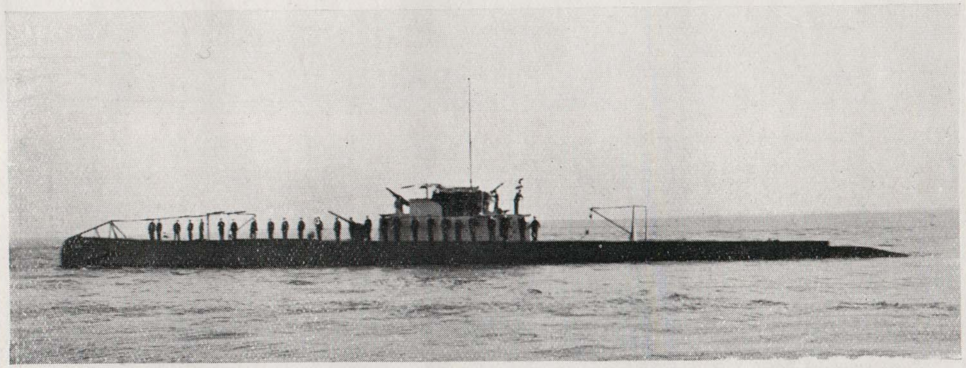
## **22** + *9* **Submarines**

3 boats: ***K 25, 26, 27.*** Projected for 1938.

4 boats: ***K 21, K 22, K 23, K 24.*** Laid down 1937, two by K. M. de Schelde, two by Rotterdam Dry Dock Co. 950/1,300 tons. Dimensions: 254½ × 23 × 13 feet. Armament: **1**—3·5 inch, **2**—40 mm. AA., **1**—12·7 mm. AA., **8**—21 inch tubes. Fitted for minelaying. 2 Sulzer Diesels by K. M. de Schelde. B.H.P.: 5,200 = 19.5 kts. All ordered April, 1937, for completion in 1939.

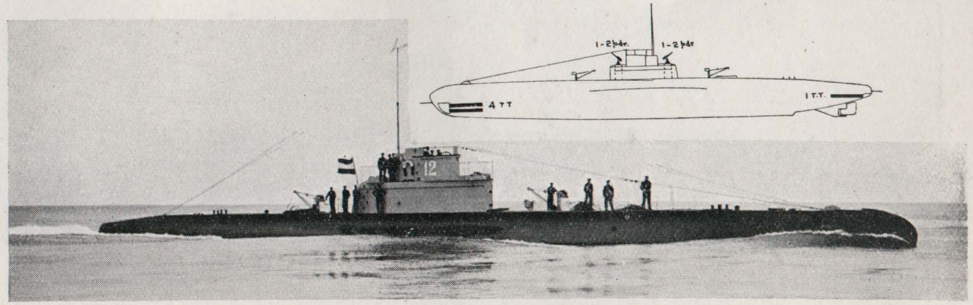
2 *Minelaying* type: ***K 19, K 20.*** Laid down in 1936 by Wilton-Fijenoord at Schiedam. Displacement: 967/1,468 tons. Complement: 38. Dimensions: 264¾ × 23¼ × 12¾ feet. Armament: **1**—3·5 inch gun, **2**—40 mm. AA., **1**—12·7 mm. AA., **8**—21 inch tubes, 38 mines. 2 Sulzer Diesels by K. M. de Schelde. B.H.P.: 5,000 = 20 kts. *surface*. *Submerged* speed, 9 kts. Due for completion in 1938.





1937, *courtesy Ir. R. F. Scheltema.*

1 boat: ***O16*** (Kon. Mij de Schelde, Jan. 27, 1936). Displacement: 896/1,200 tons. Dimensions: 254¼ × 21⅓ × 13 feet. Guns: **1**—3·5 inch, **2**—40 mm. AA. Tubes: **8**—21 inch (4 bow, 2 stern, 2 deck). 2 M.A.N. Diesels. H.P. 3,200/860 = 18/9 kts. Complement, 38.

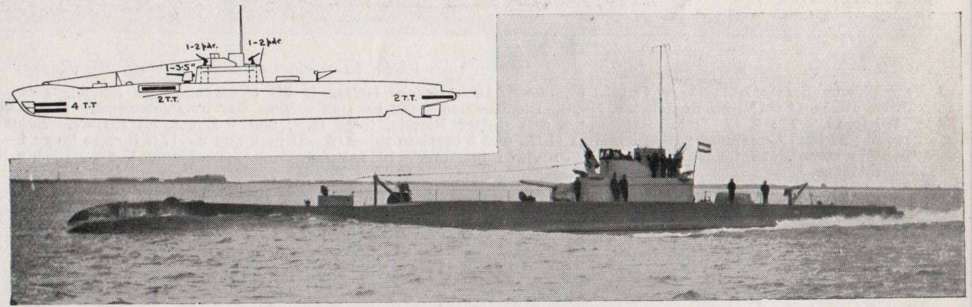


O 12. 1932 *Photo, Chef. Kreuger.*

3 boats: ***O 12, O 13, O 14*** (K.M. de Schelde, 1931). Ordered 1927–28. Displacement: 546/704 tons. Dimensions: 198¼ (*o.a.*) × 17¾ × 11¾ feet. 2 Sulzer Diesels. H.P. 1,800/600 = 15/8 kts. (Trials gave 16 kts. *surface* easily.) Armament: **5**—21 inch tubes (**4** bow, **1** stern), **2**—40 mm. AA. guns, mounted in watertight tube in C.T.

Radius: 3,500 miles at 10 kts *on surface*; 26 miles at 8 kts. *submerged*. Complement: 31.

1 boat: ***O 15*** (Fijenoord, 1932). (Ordered 1929). Similar to above, but M.A.N. Diesels.



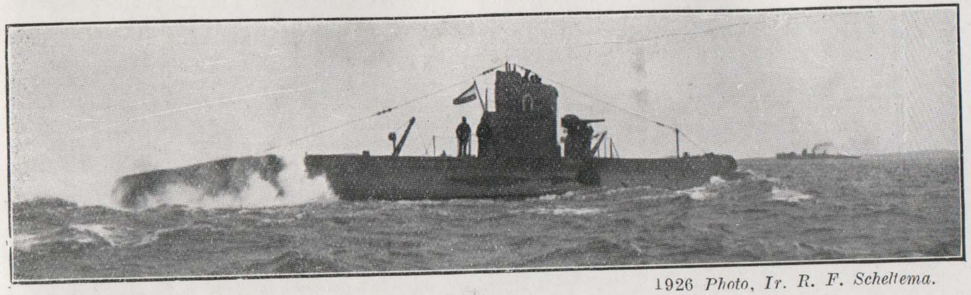
K 17. 1933 *Photo.*

3 boats: ***K 14*** (July, 1932), ***K 15*** (Dec., 1932), ***K 16*** (April, 1933). Ordered 1929–30, Rotterdam Dry Dock Co.

2 boats: ***K 17*** (July, 1932), ***K 18*** (Sept., 1932). Ordered 1929–30, M. Fijenoord.

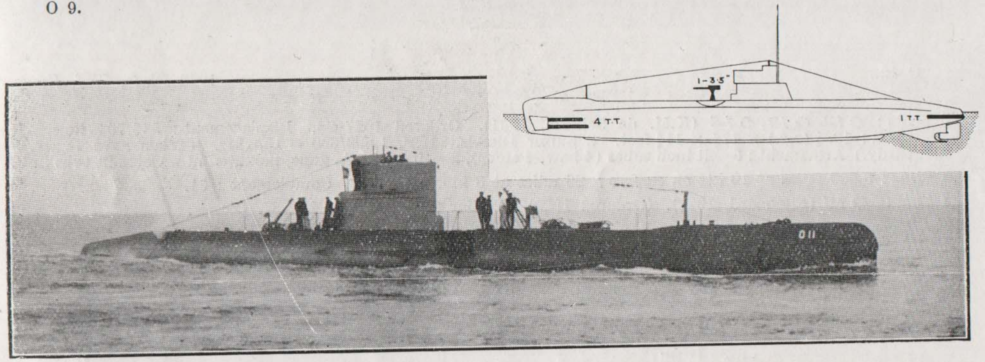
Displacement: 771/1,008 tons (first 3); 782/1,024 tons (last 2). Dimensions of all: 242¼ (*o.a.*) × 25 × 12⅔ feet H.P. 3,200/1,000 = 17/9 kts. Armament: **8**—21 inch tubes (**4** bow, **2** stern, **2** deck), **14** Torpedoes carried, **1**—3· inch gun, **2**—40 mm. AA., **1**—12·7 mm. AA. Radius: 3,500 miles at 11 kts., 26 miles at 8·5 kts. Complement, 3 Diving limit, 44 fms.

*Note.*—On Trials these boats made 19 kts. *K* 18 accomplished a record passage for an unescorted submarine, fro the Netherlands to the East Indies via South America and Western Australia, a distance of 23,000 miles. Sh proved herself an excellent sea-boat.



O 9.

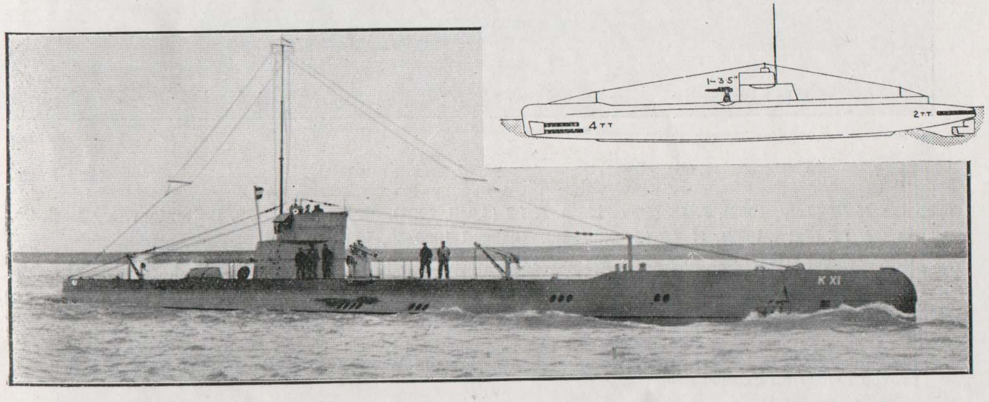
1926 *Photo, Ir. R. F. Scheltema.*



O 11.

1926 *Photo, by courtesy of Chief of Staff, The Hague.*

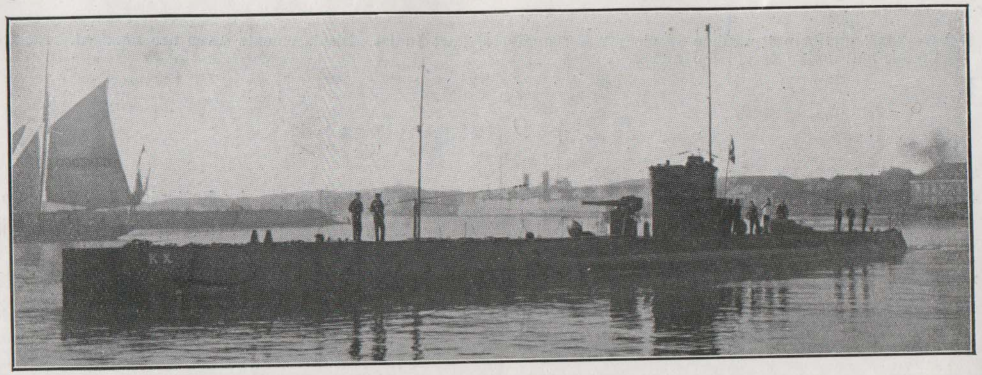
3 *Navy* (Home Service) type: ***O 11*** (M. Fijenoord, 19th March, 1925), ***O 10*** (Nederlandsche Scheepsbouw, 30th July, 1925), ***O 9*** (K. M. de Schelde. 1925). Displacement: 483 tons *on surface*. 647 tons *submerged*. Dimensions: $179\frac{1}{4}$ (*o.a.*) × $17\frac{1}{2}$ × $11\frac{2}{3}$ feet. Engines: 2 sets Sulzer Diesels, total H.P. 900 = 12 kts. *on surface*. *Submerged* speed: 8 kts. Armament: **1**—3·5 inch, **1** M.G., and **5** torpedo tubes (**2**—21 inch and **2**—17·7 inch in bow; **1**—17·7 inch in stern). **10** torpedoes carried. Provided for under 1917 Programme. Complement, 29. Diving limit, 33 fathoms.



1925 *Official Photo, by courtesy of Chief of Naval Staff, The Hague.*

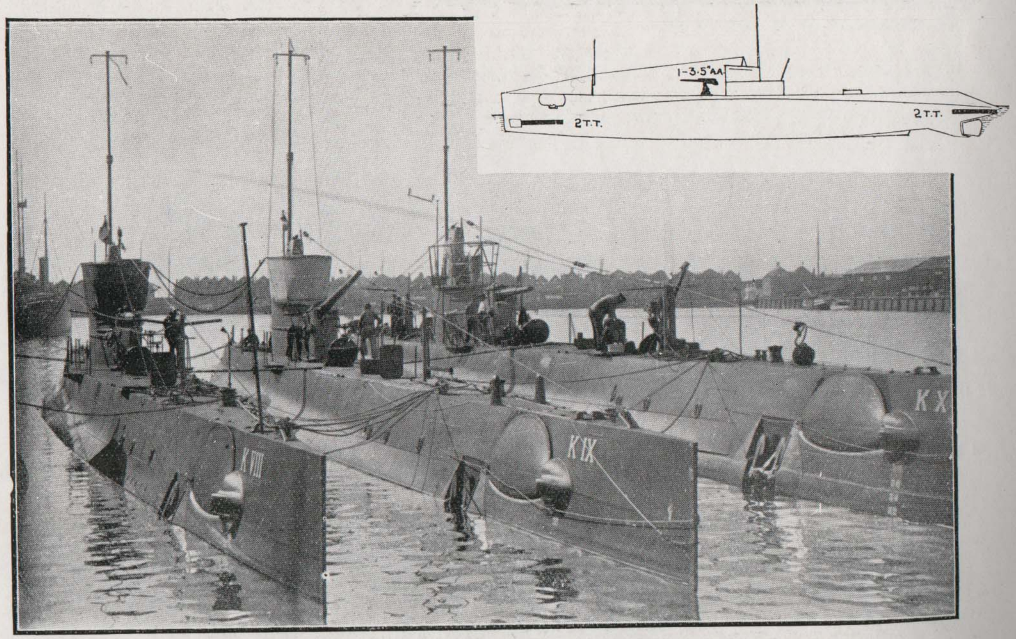
3 *Navy* type: ***K 13*** (Dec., 1924), ***K 12*** (Nov., 1924), ***K 11*** (April, 1924). all by M. Fijenoord, Rotterdam. Displacement: 611 tons *on surface*, 815 tons *submerged*. Dimensions: $218\frac{3}{4}$ (*o.a.*) × 19 × $12\frac{1}{2}$ feet. Engines: 2 sets, M.A.N. Diesels, each 1,200 B.H.P. = 15 kts. *surface* speed (17 kts. reached on trials.) *Submerged* speed: 8 kts. Armament: **1**—3·5 inch, **1**—12·7 mm., **2**—21 and **4**—17·7 inch tubes (2 of each calibre in bow, **2**—17·7 inch in stern). **12** Torpedoes carried. Complement, 31. Provided for under 1918 Naval Programme. Diving limit 33 fathoms.

*Note.*—*K* 13 completed the voyage from Amsterdam to Soerabaja, via the Panama Canal, unescorted, without mishap. Period occupied was from May 27 to Dec. 12, 1926.



K 10.

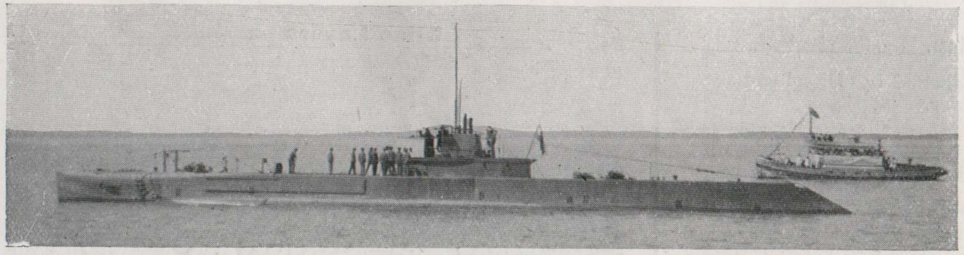
1926 *Photo, Ir. R. F. Scheltema.*



K 8, 9, 10.

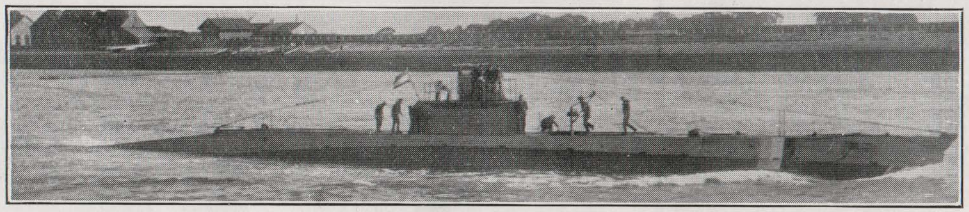
1925 *Photo, by favour Ir. R. F. Scheltema.*

3 *Electric Boat Co.* design: ***K 10*** (May, 1922), ***K 9*** (1922), and ***K 8*** (1922) all by K. M. de Schelde. Displacements: 521 tons on *surface*, 712 tons *submerged*. Dimensions: $210\frac{1}{4}$ (*o.a.*) × $17\frac{3}{4}$ × $11\frac{2}{3}$ feet. Armament: **1**—3·5 inch AA., **1**—12·7 mm. AA., **4**—17·7 inch tubes (2 bow, 2 stern). Machinery: *K* 8 has two sets of M.A.N. Diesels, H.P.: 1,800, while *K* 9 and *K* 10 have 2 Schelde-Sulzer type, H.P.: 1,500, for a *surface* speed of 15 kts. (16 reached *on trials*. Electric motors B.H.P.: 630 = 9·5 kts., *submerged* speed. Endurance about 3,500 miles at 11 kts. *on surface*, 26 miles at 8·5 kts., *submerged*. Complement: 31. Diving limit, 22 fathoms.



K 5 (of same type, now scrapped). 1921 *Photo by courtesy of the Chief of Naval Staff, Batavia.*

1 *Hay-Denny* type : ***K 7*** (Mar. 8, 1920), (M. Fijenoord, Rotterdam). Displacement : 507/639 tons. Dimensions : 177 (*p.p.*), 188 (*o.a.*) × $16\frac{1}{2}$ × $12\frac{1}{2}$ feet. Machinery : 2 sets Sulzer Diesels. H.P. : 1,200 = 13·5 kts. *surface. Submerged* speed : 8 kts. Guns : **1**—3 inch, **1**—12·7 mm. AA. Tubes : **6**—17·7 inch (2 bow, 2 stern, 2 deck). Begun 1916, completed 1922. Diving limit : 22 fathoms.

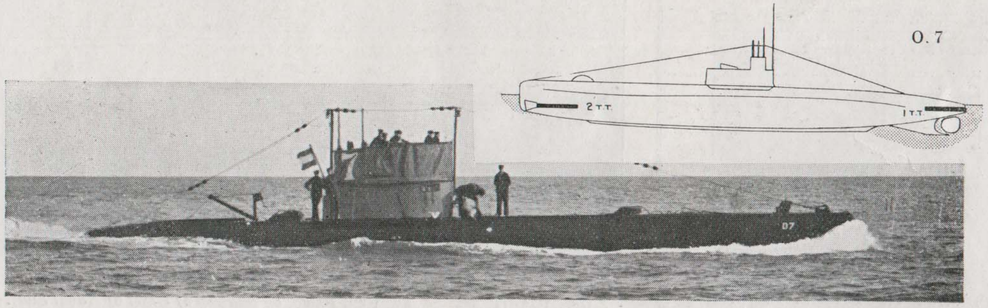


O 8. (Now has C.T. screen). 1918 *Photo, Fotopersbureau "Holland."*

1 *Holland* type : ***O8*** (ex-British submarine *H 6*), built by Canadian Vickers Co., Montreal, 1915, wrecked on Schiermonnikoog Island, Jan., 1916, salved Feb., 1916, interned at Nieuwediep, and subsequently purchased by Dutch Government. Displacements : 343 tons on *surface*, 433 tons *submerged*. Dimensions : $146\frac{1}{2}$ (*p.p.*), $151\frac{1}{2}$ (*o.a.*) × $15\frac{1}{3}$ × $12\frac{3}{4}$ feet. Armament : **4**—18 inch tubes (all bow). Guns : **1**—37 mm., **1** M.G. Machinery : 8 cyl. Nelseco* Diesels H.P. 480 = 11·5 kts. on *surface ; submerged* speed 8 kts. Fuel : 16 tons oil carried. Complement, 26.

*"Nelseco" is trade mark for engines manufactured by the New London Ship & Engine Co., Groton, Conn., U.S.A. Their engines are the German M.A.N. (Nuremberg) type built under licence.

O. 7

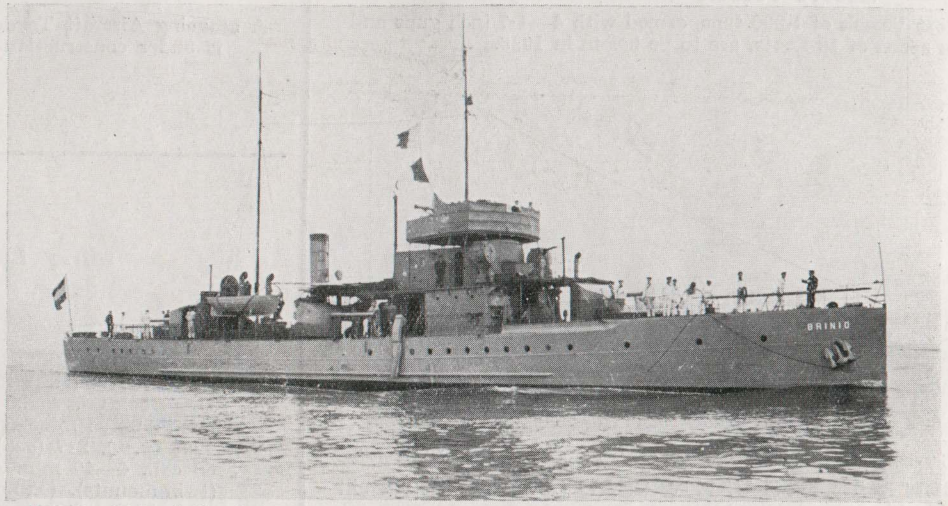


1932 *Photo, Chef. Kreuger.*

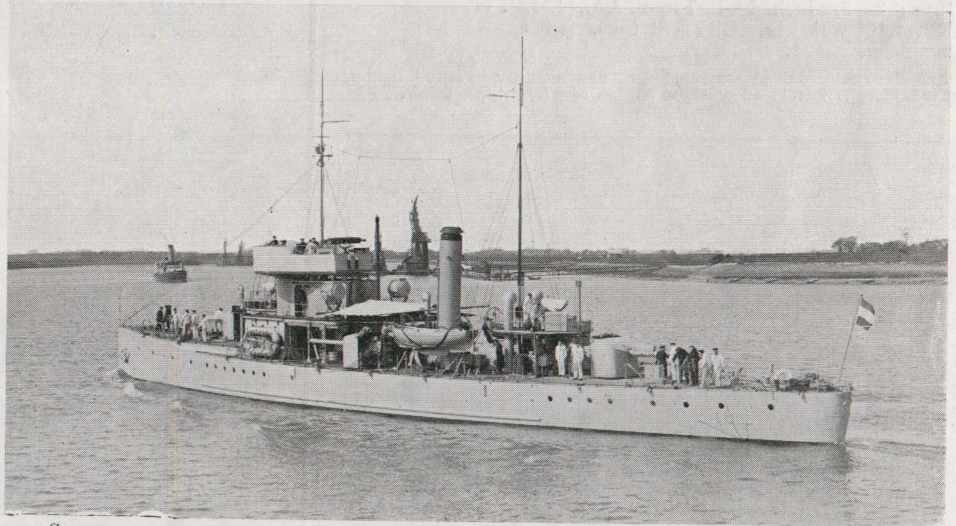
1 *Hay-Denny* type : ***O 7*** (M. Fijenoord, Rotterdam, 1916). Displacements : 168 tons *on surface*, 206 tons *submerged*. Dimensions : $112\frac{1}{3}$ (*o.a.*) × 12 × $9\frac{1}{2}$ feet. 3—17·7 inch torpedo tubes, 1—M.G. Machinery : 1 set 6 cyl. M.A.N. Diesel H.P. 350 = 11 kts. *on surface. Submerged* speed 8 kts. Endurance : 750 miles at 10 kts. *on surface* ; 3 hours continuous running *submerged* at $8\frac{1}{2}$ kts.

## Armoured Gunboats.

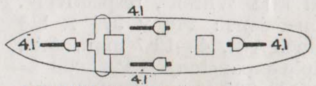
(3 new vessels are projected to replace these)



BRINIO. (*Friso* similar, but has thinner and taller funnel.) 1934 *Photo.*



GRUNO 1934 *Photo.*



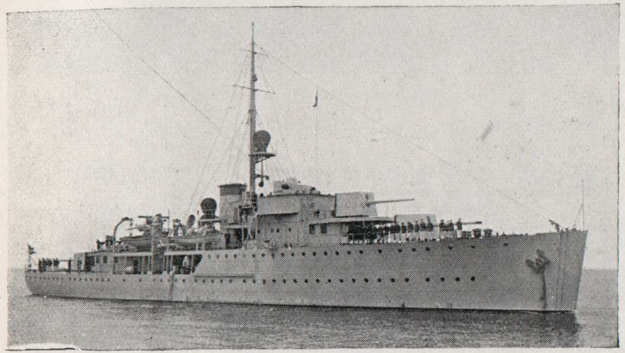
**BRINIO** (1912), **FRISO** (1912), **GRUNO** (1913). All built by Amsterdam D.Y. 540 tons. Complement : 52. Dimensions : $172\frac{1}{4}$ (*o.a.*) × 28 × $9\frac{1}{4}$ feet *max.* draught. Armament : 4—4·1 inch semi-automatic, 2 M.G. Armour : 2″ belt, $\frac{2}{3}$″ deck, 2″ conning tower. Machinery : 2 sets Diesel engines. (All were re-engined, 1934-35, with Sulzer Diesels in *Brinio & Gruno*, M.A.N. in *Friso*), B.H.P. : 1500 = 14 kts. Oil : 34 tons. Complement, 63.

These vessels are intended to guard mine fields.

# ETHERLANDS—Escort Vessels and Mine Layers

## Escort Vessels (*Flottieljevaartuigen*).

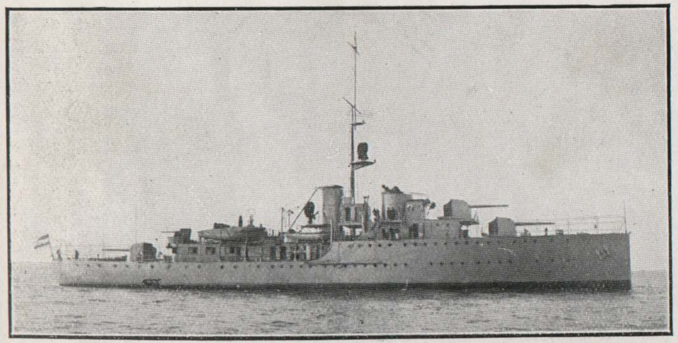
3 Escort Vessels of 1,200 tons, armed with **4**—4·7 inch guns and with a speed of 19 knots, are to be begun in 1938.



(Serving in W. Indies). 1933, *Photo.*

**JOHAN MAURITS VAN NASSAU** (Aug. 20, 1932). Built at Flushing.
Displacement : 1,520 tons. Dimensions : 258 × 38 × 12·3 feet. Guns : **3**—5·9 inch, **4**—12·7 mm., AA., 4 M.G. H.P. 2,100 = 15 kts. Oil : 273 tons. Complement, 124.

*Note.*—Has electrically welded armoured deck and ordinary balanced rudder, but otherwise is merely an enlarged edition of *Flores* type, below.



Soemba. 1926 *Photo, by courtesy of Chief of Naval Staff.*

**FLORES** (15th Aug., 1925), **SOEMBA** (24th Aug., 1925). Built at Rotterdam by M. Fijenoord and Wiltons, respectively. Displacement : 1457 tons. Dimensions : 248 × 37$\frac{1}{2}$ × 11$\frac{3}{4}$ feet. Guns : **3**—5·9 inch, **1**—3 inch AA., **4**—12·7 mm., AA., 2 M.G. Machinery : 2 sets triple expansion, H.P. 2000 = 15 kts. 4 Yarrow boilers. Oil : 285 tons. Complement, 132.

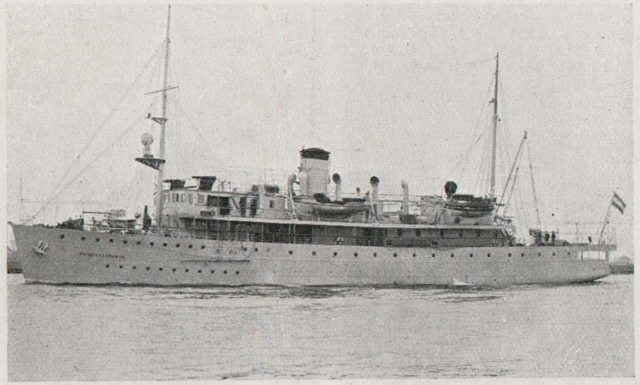
*Note.*—These Vessels have a 1″ armoured deck and C.T. They are fitted with Flettner rudders, and have accommodation for a seaplane.

## Aircraft Tender.

A seagoing Aircraft Tender, to be propelled by Diesel engines, is under construction at Den Helder.

## Mine Layers (*Mijnenleggers*).

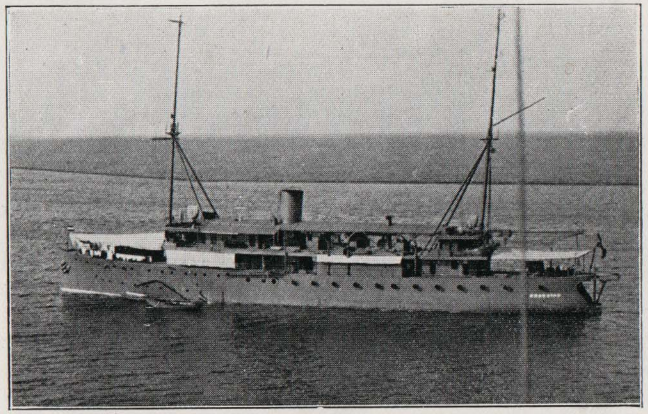
**WILLEM VAN DER ZAAN.** Laid down 1937 by Netherland Dry Dock Co. *Standard* displacement : 1,300 tons. Complement : 92 as minelayer, 130 as training ship. Dimensions : 229$\frac{2}{3}$ (*p.p.*), 247 (*o.a.*) × 36$\frac{3}{4}$ × 11 feet. Guns: **2**—4·7 inch, 50 cal., **4**—40 mm. AA. (twin mounts), **4**—12·7 mm. AA. (twin mounts). (120 mines). Machinery : 2 sets triple expansion. H.P. : 2,200 = 15·5 kts. Boilers : 2 Yarrow. During peace time is employed as Seagoing Training Ship for Cadets and Midshipmen. Equipment to include a seaplane and derrick.



1932 *Photo.*

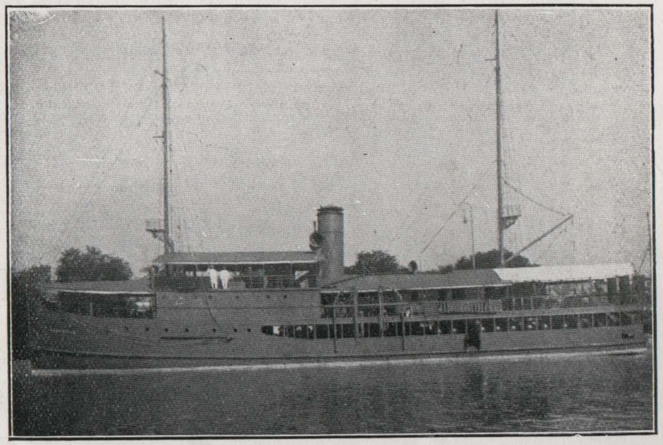
**PRINS VAN ORANJE, GOUDEN LEEUW,** (1931), at Rotterdam ("Maas"). Displacement : 1,291 tons. Dimensions : 216 × 36 × 11 feet. Guns : **2**—3 inch AA., **2**—40 mm. AA., **2** 12·7 mm. AA., **2** M.G. H.P. : 1,750 = 15 kts. Complement : 121.

## Mine Layers—*continued.*



1929 *Photo, by courtesy of Chief of Naval Staff.*

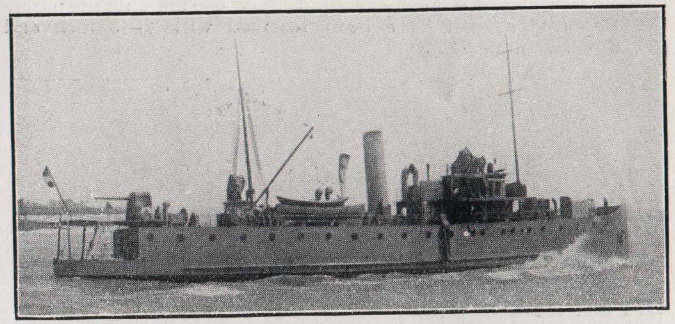
**KRAKATAU** (Soerabaja D.Y., 1924). Displacement, 982 tons. Dimensions : 213 × 34$\frac{1}{2}$ × 10$\frac{1}{2}$ feet. Guns : **2**—3 inch AA., **4** M.G. H.P. : 2,500 = 15·5 kts. Complement : 91. Reconstructed 1928, after funnel being removed. Foundered in 1932 through stern mine ports being left open while steaming at full speed. Salved and refitted same year.



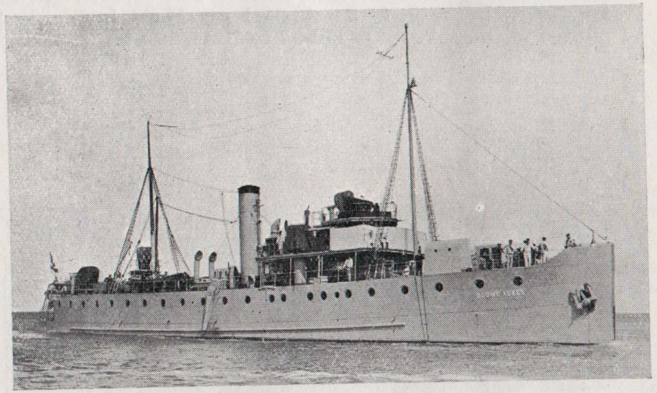
Pro Patria. 1926 *Photo, by courtesy of Chief of Naval Staff.*

**PRO PATRIA** (Soerabaja D.Y., July 21, 1922). Displacement, 537 tons. Dimensions : 154 × 28$\frac{1}{4}$ × 9$\frac{1}{4}$ feet. Guns : **1**—3 inch AA., 2 M.G. H.P. 650 = 10 kts. Complement: 61.

## Mine Layers—*continued*



Van Meerlant. 1926 *Photo, by courtesy of Chief of Naval Staff.*

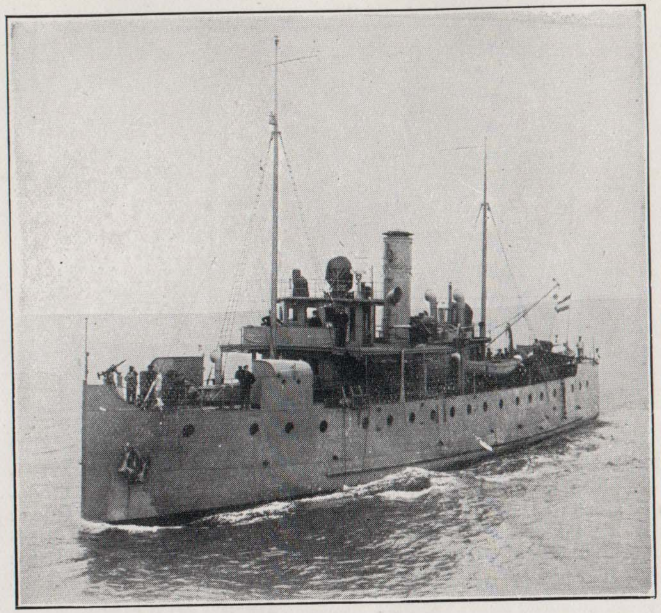


Douwe Aukes. 1933 *Photo.*

**VAN MEERLANT** (Nov. 24th, 1920), **DOUWE AUKES** (Feb. 23rd. 1922). First built under 1917 Naval Programme and the second under 1918 Naval Programme, by Werf Gusto, Schiedam. 687 tons. Dimensions: $180\frac{1}{2} \times 28\frac{1}{2} \times 10\frac{1}{2}$ feet. Guns: **3**—3 inch AA., semi-auto. "No. 4." **2** M.G. Twin screws. Engines: 2 sets triple exp. surface condensation. I.H.P. 1000 = 13 kts. Coal: **115** tons. Complement, 60.

Of the same type as *Hydra* and *Medusa* (see next column), but faster. 2 steam winches for handling mines and double laying gears.

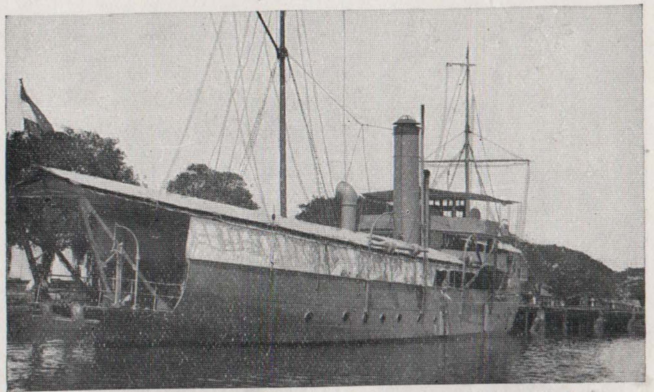
## Mine Layers—*continued.*



1918 *Photo, Fotopersbureau "Holland."*

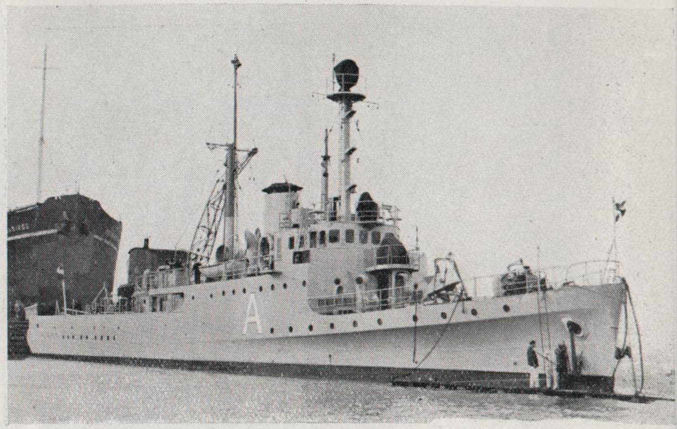
**HYDRA** (1911) & **MEDUSA** (1911). Both built at Amsterdam D.Y. 593 tons. Complement, 53. Dimensions: $163 \times 29\frac{1}{2} \times 9$ feet. Guns: **2**—3 inch AA. **1**—3 inch S.A., **1** M.G. Designed H.P. 800 = 12 kts. Coal: **72** tons. Radius of action: 1440 miles at 6 kts.

*Note.—Hydra* sank off the "Wielingen" Light Ship by collision with T.B. *Z 3*, Feb., 1921; salved April, 1921 and again in service.



**SERDANG** (1897), 680 tons. About $173\frac{1}{4} \times 31\frac{1}{4} \times 12$ feet average. Armament: **1**—3 inch AA., **2**—1 pdrs., **4** M.G. H.P.: 1,290 = 13 kts. Coal: 150 tons. Complement: 97 (55 Europeans, 42 natives). Tender to Torpedo Service. Double laying gear fitted.

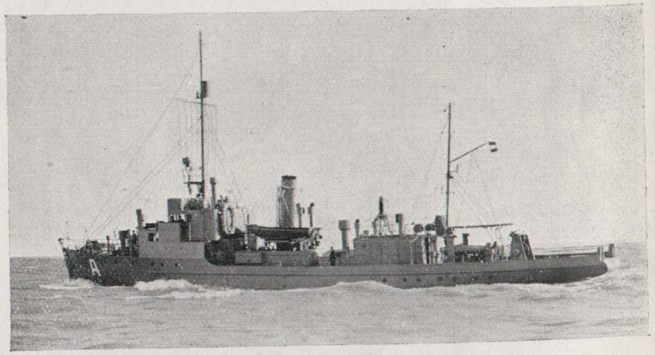
## Mine Sweepers.



J. van Amstel. 1937, *Wide World Photos.*

**JAN VAN AMSTEL** (Aug. 27, 1936), **PIETER DE BITTER** Nov., 1936), both by Smit, Rotterdam; **ABRAHAM CRIJNSSEN** (Sept. 22, 1936), **ELAND DUBOIS** (Oct. 24, 1936), both by Werf Gusto, Schiedam; **WILLEM VAN EWIJCK** (Feb. 22, 1937), **PIETER FLORISZ** (May 11 1937), both by Smit; **JAN VAN GELDER** (April 17, 1937), **ABRAHAM VAN DER HULST** (May 27, 1937), both by Werf Gusto. Displacement: 525 tons. Complement: 46. Dimensions: $183 \times 25\frac{1}{2} \times 7$ feet. Guns: **1**—4·7 inch, 40 cal., **4**—12·7 mm. AA. (twin mount), **1** M.G. H.P.: 1,600 = 15 kts. Oil fuel: 110 tons. Are also equipped for mine laying.

*Notes.*—All reached 16 kts. on trials. Are lettered on bow with initials of each surname, A to H.

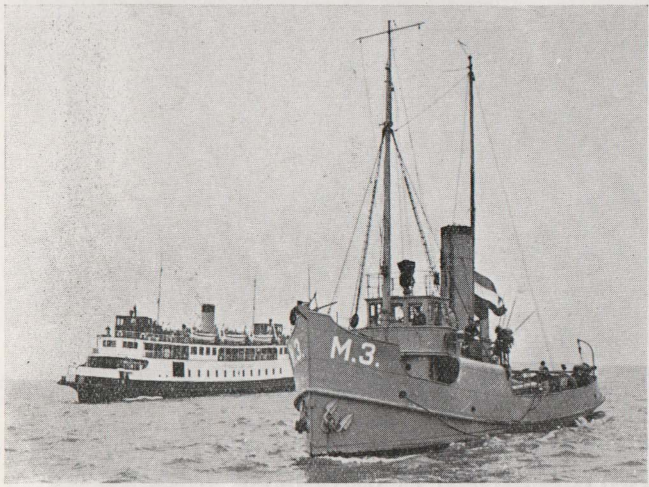


1934 *Photo.*

**A, B, C, D.** (Willemsoord D.Y., Den Helder, 1929–30). Displacement: 179 tons. Dimensions: $140\frac{1}{2} \times 19\frac{3}{4} \times 5$ feet. 2 M.G. H.P.: 700 = 14·5 kts. Oil: 40 tons. Complement 30.

**AMSTERDAM, CAROLINE, CLARISA LUTHER** (Trawlers acquired 1937 for experimental work.) Particular wanted.

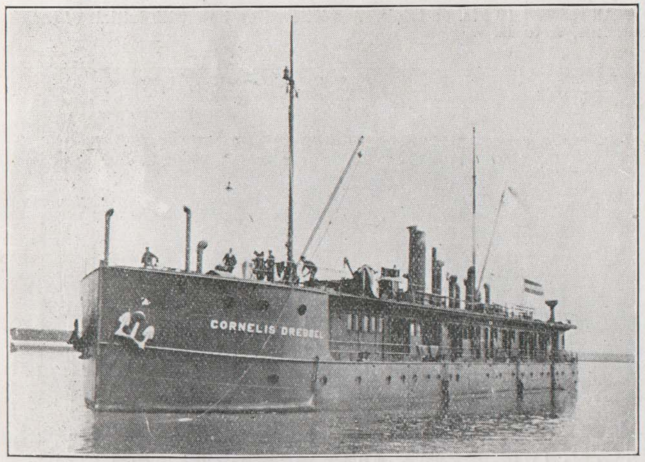
## Mine Sweepers—*continued.*



1934 *Photo.*

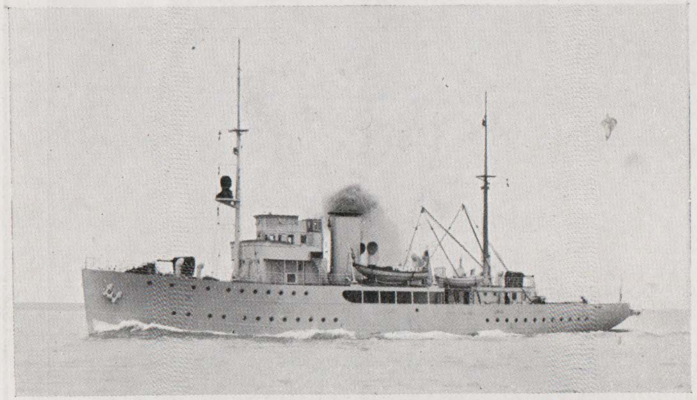
**M 1** (Van der Kuyk en Ree, Rotterdam), 238 tons. **M 2** (Koopman, Dordrecht), 205 tons. **M 3, 4** (v.d. Schuyt, Papendrecht), both 230 tons. Completed and taken over in 1916. Steel. Dimensions: 92 × 20½ × 10 feet. Speed: 10 kts. Guns: **1** machine. Complement: 16.

## Submarine Depot and Repair Ship.



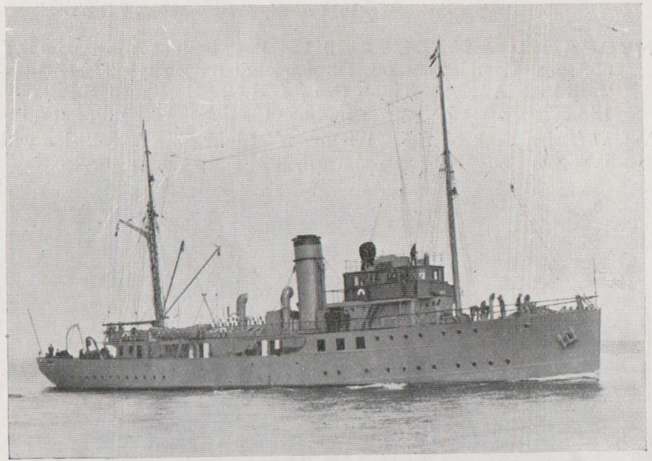
**CORNELIS DREBBEL** (1915). 668 tons. Dimensions: 166·8 × 32·8 × 6·8 feet. Guns: **1**—1 pdr. Diesel engines. 3 shafts. B.H.P.: 170 = 6 kts. Oil fuel: 71 tons. Complement: 73

## Fishery Protection Vessels.



1936, *Official.*

**JAN VAN BRAKEL** (K. M. de Schelde, Feb. 8, 1936). Displacement: 740 tons, *standard,* (*full load* 955 tons). Dimensions: 181½ × 30 × 10 feet *mean,* 13 feet *max.* Guns: **2**—3 inch, **1**—37 mm., **4**—12·7 mm. AA. Fitted for minelaying. Machinery: Triple expansion. 2 shafts. H.P.: 1,600 = 15 kts. 2 Yarrow boilers. Oil fuel. Complement: 65.

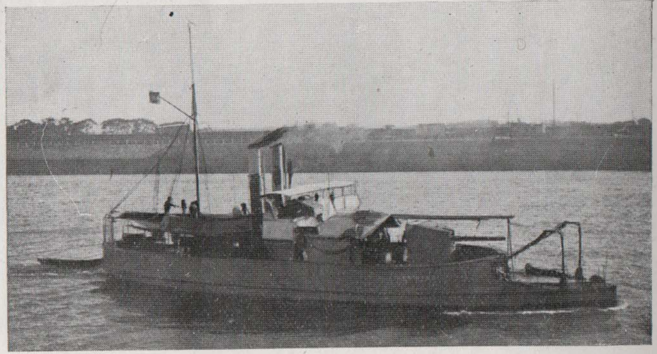


1930 *Photo, by courtesy of Ministry of Defence.*

**NAUTILUS** (Oct. 30th, 1929). Built by Rotterdam Dry Dock Co. Displacement: 800 tons. Dimensions: 180½ (*p.p.*), 191½ (*o.a.*) × 31 × 11½ feet. Guns: **2**—3 inch, **1**—37 mm., **2**—40 mm. AA. H.P.: 1,350 = 14 kts. Oil: 138 tons. Complement: 50. (This vessel is used on Fishery Protection duties. She is fitted to carry mines. 3 inch guns not mounted at present.)

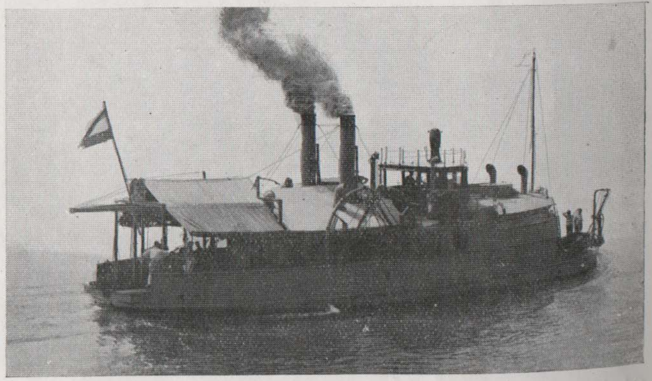
## Old Gunboats.

(Mostly employed as Harbour Tenders, or for Training purposes. Reported several have been rearmed with **1**—3 inch and **2**—12·7 mm. AA.).



HEFRING. 1921 *Photo, R. F. Scheltema, Esq.*

**BRAGA, HEFRING, TYR, FREIJR** Are old iron twin-screw Gunboats, built 1876–79. 240 tons. Complement: 34–30. Dimensions: 91·5 to 91·8 (*o.a.*) × 26·9 × 7·8 to 8·1 feet (*max.* draught). Guns: In *Braga, Hefring,* **1**—4·7 inch, **2**—1 pdr., **1** machine. In *Freijr,* **1**—3 inch, **3**—1 pdr. M.G. In *Tyr,* **3**—1 pdrs., 1 M.G. H.P. 100 to 170 = 7 to 8 kts. Coal: 30 tons.

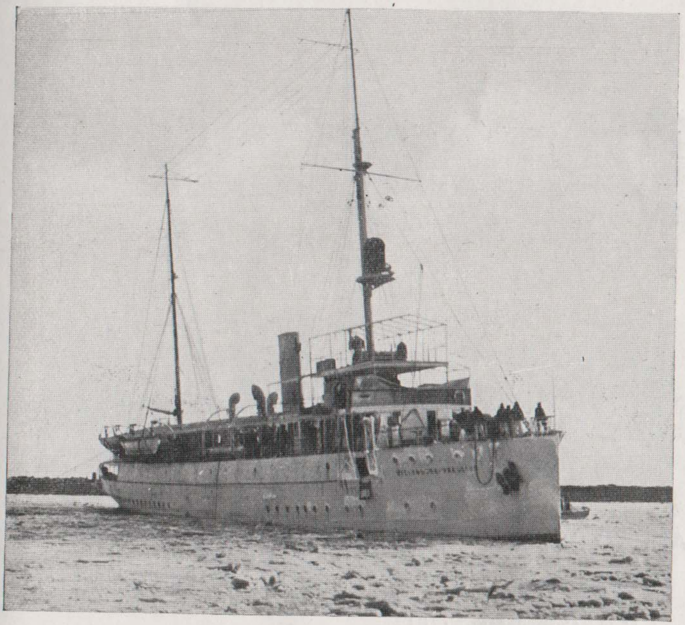


1920 *Photo, R. F. Scheltema, Esq.*

**BALDER** (1878), **THOR** (1877), **VIDAR, BULGIA** and **HADDA** (1879), ex-gunboats of 223–244 tons. Complement, 34–36. Guns: **2**—4 pdr. in *Balder, Hadda,* **2**—1 pdr. in *Vidar* and *Thor*; **1** M.G. in all four. Speed: 7 kts. Coal: 30 tons. Double mine laying gears in all.

TK - 10mt [illegible] MTB 128T 30mm 2-57 2-20 8-13 4-450,

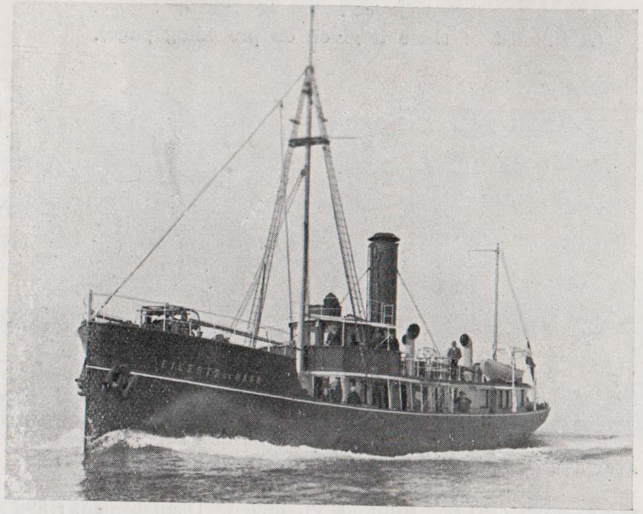
## Surveying Vessels.



1930 *Photo, by courtesy of Ministry of Defence.*

**WILLEBRORD SNELLIUS** (Fijenoord Co., Aug. 14th, 1928.) Displacement: 930 tons. Dimensions: 190 (*p.p.*), 203½ (*o.a.*) × 31¾ × 11¼ feet. H.P. 525 = 10·5 kts. Oil 190 tons. Guns: 1—3 inch, 2—1 pdrs., 2 M.G. Complement: 85.

## Surveying Vessels—*continued.*

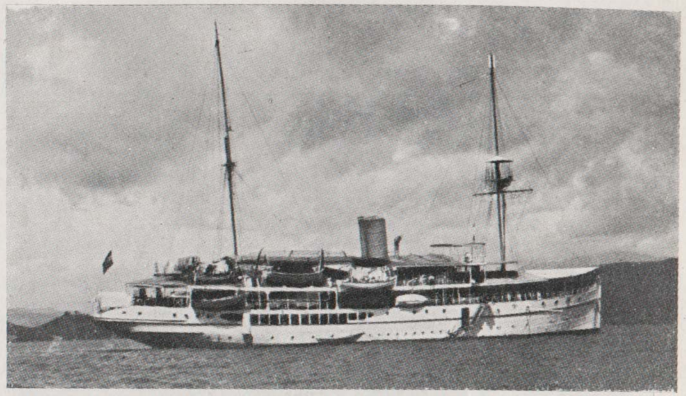


Eilerts de Haan. 1932 *Photo, Chef Kreuger.*

**EILERTS DE HAAN** (25th June, 1919). Fijenoord Co. Rotterdam. 312 tons. Dimensions: 147·3 × 21·9 × 7 feet. No guns. Designed H.P. 600 = 12 kts. Coal: 44 tons. Complement, 18. Begun under 1915 Naval Programme. Completed May, 1921.

**HYDROGRAAF** (1911). 300 tons. Dimensions: 132·7 × 21·9 × 9·6 feet. Guns: none. I.H.P. 360 = 9 kts. Coal: 30 tons. Complement, 18. (Similar in appearance to above).

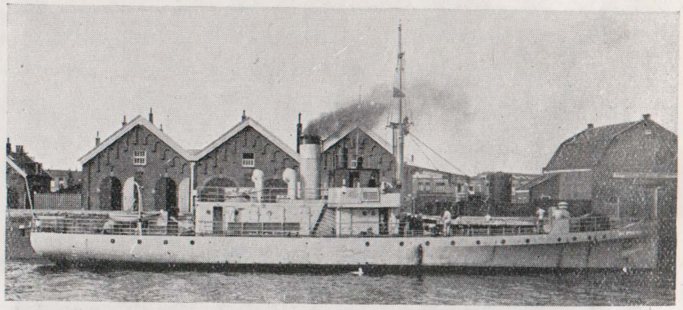
## Surveying Vessels—*continued.*



1936

**TYDEMAN** (Soerabaja D.Y., 1916). 1,160 tons. Dimensions: 226·4 × 32·8 × 11·8 feet. Guns: 1—3 inch, 2—1 pdrs., 2 M.G. Diesels. H.P.: 700 = 10 kts. 2 screws. Oil: 194 tons. Complement: 104.

## Tender (*rated as Torpedo Transport*).



1937.

**MERCUUR** (Feb. 26, 1936). Displacement: 265 tons *standard*, 284 tons *full load*. Dimensions: 137½ (*p.p.*), 140 (*o.a.*) × 23 × 9 feet. No guns. H.P. 325 = 12 kts.

## Vessels in Netherlands East Indies.

1. The following ships of the Royal Netherland Navy are stationed in East Indies: *De Ruyter, Sumatra,* all destroyers, all K series of submarines, and motor torpedo boats; *Flores, Soemba, Krakatau, Pro Patria, Serdang, Prins van Oranje, Gouden Leeuw;* Minesweepers *A, B, C, D, Jan van Amstel, Pieter de Bitter, Abraham Crijnssen, Eland Dubois; Snellius, Tydeman, Soerabaja.*
   Building or temporarily serving in Holland but destined for East Indies: *Tromp, Java,* 2 destroyers, 6 submarines.
2. To the Naval Department in the East Indies is also attached the "Gouvernements Marine," a civil force, which is the property of the East Indies Government, and in peace time is used for Customs and Police Duties, &c. Some vessels mount 3 inch and 1 pdr. guns. The personnel is enlisted in the Naval Reserve and the ships are destined for auxiliary duties with the fleet in time of war.

SHIPS OF THE "GOUVERNEMENTS MARINE," to be transformed into warships when required.

| *Name* | *Built at* | *Year* | *Length p.p.* | *Beam* | *Draught* | *Displacement* | *Trials: I.H.P.* | *Speed* | *Compl.* |
|---|---|---|---|---|---|---|---|---|---|
| *Albatros* .. | Vlissengen .. | 1912 | 164 | 31 | 10¾ | 892 | 1,140 | 12·4 | 47 |
| *Orion* .. | Soerabaja .. | 1912 | 183½ | 29½ | 12 | 1,062 | 1,380 | 14·2 | 71 |
| *Aldebaran* .. | " .. | 1913 | 175 | 27 | 11½ | 892 | 800 | 12·4 | 45 |
| *Bellatrix*<br>*Canopus*<br>*Deneb* | Amsterdam .. | 1914–15 | 175 | 29½ | 10 | 773 | 800 | 12·4 | 45 |
| *Gemma* .. | Rotterdam .. | 1918 | 175 | 29½ | 10½ | 845 | 800 | 12·3 | 44 |
| *Eridanus* .. | Soerabaja .. | 1918 | 185⅓ | 29½ | 11½ | 996 | 800 | 12·3 | 44 |
| *Fomalhaut* .. | " .. | 1923 | 186 | 31 | 11 | 1,000 | 855 | 13·4 | 55 |
| *Sirius*<br>*Wega* | Gorinchem .. | 1922 | 182½ | 31 | 10¾ | 1,015 | 900 | 12·8 | 50 |
| *Valk*<br>*Arend* | Rotterdam .. | 1929 | 229⅔ | 29½ | 9¼ | 1,011 | 3,350 | 18 | 61 |
| *Rigel* .. | Amsterdam .. | 1929 | 221½ | 36¼ | 10 | 1,631 | 1,400 | 12·5 | 63 |
| *Merel* .. | Soerabaja .. | 1928 | 152¼ | 27½ | 9¼ | 592 | 525 | 12 | 40 |
| *Reiger*<br>*Fazant* | " .. | 1930 | 156¾ | 27½ | 9¼ | 624 | 525 | 12 | 40 |
| *Zuiderkruis* ..<br>(Cable ship). | Amsterdam .. | 1923 | 256 | 36¾ | 14¼ | 2,661 | 1,600 | 12·5 | 97 |

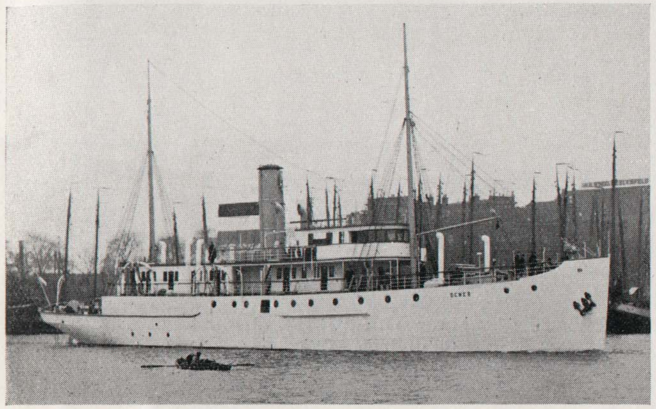
SHIPS OF EAST INDIES BUOY- AND LIGHTHOUSE SERVICE (to be transformed into warships in time of War).

| *Name* | *Machy.* | *Built at* | *Year* | *Length p.p.* | *Beam* | *Draught* | *Displ.* | *I.H.P.* | *Speed* | *Compl.* |
|---|---|---|---|---|---|---|---|---|---|---|
| *Hoofdinspecteur Zeeman* .. | Steam | Amsterdam | 1909 | 164 | 30·2 | 10·5 | 780 | 860 | 11·2 | 43 |
| *Castor* .. | Motor | Soerabaja | 1915 | 163 | 32·8 | 9·84 | 670 | 500 | 8·5 | 43 |
| *Pollux* .. .. | Steam | Amsterdam | 1922 | 182·5 | 31·2 | 10·2 | 946 | 550 | 12·0 | 48 |

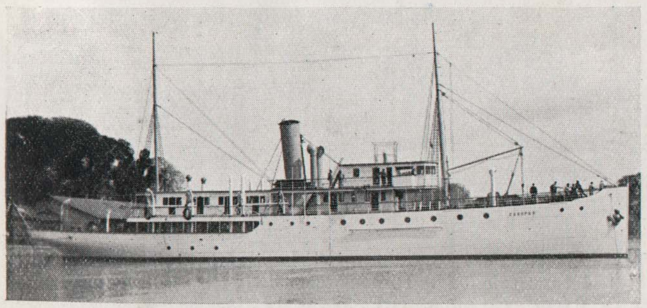
(Photos of all above ships are wanted; illustrations of a few will be found at end of this section.)

# EAST INDIES "GOUVERNEMENTS MARINE" VESSELS.

(A full list of these is given on preceding page).



DENEB. *Official Photo, added* 1931.

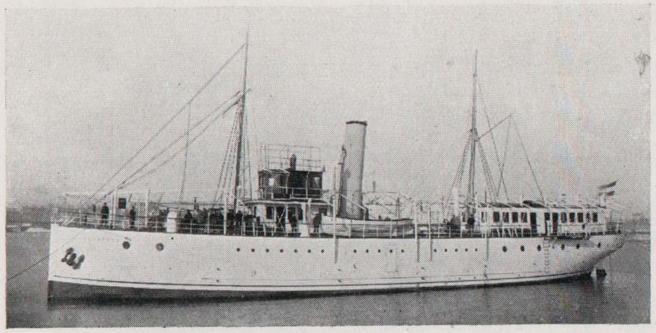


CANOPUS. *Official Photo, added* 1934.

**DENEB** (1915). **CANOPUS** (1914).
**BELLATRIX** (1914).

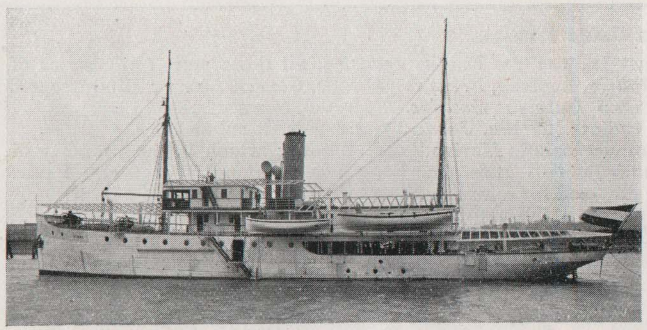
Displacement: 773 tons. Dimensions: 175 × 29½ × 10 feet. I.H.P.: 800 = 12·3 kts. Complement: 45. All built at Rijks-Marinewerf, Amsterdam.

**ALDEBARAN** (1913). Displacement: 892 tons. Dimensions: 175 × 27 × 11½ feet. Otherwise as above three. Built at Soerabaja.



ALBATROS. *Official Photo, added* 1934.

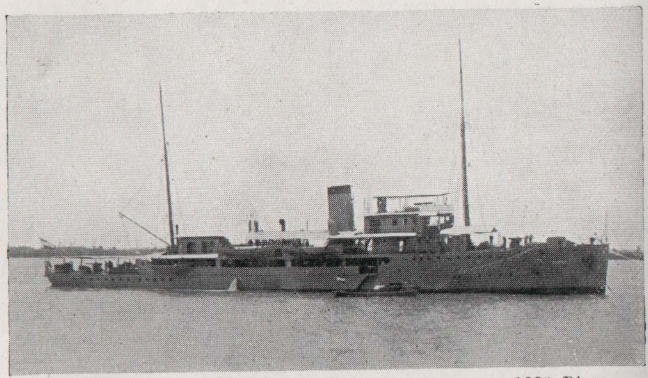
**ALBATROS** (1912). Built at Vlissingen. Displacement: 892 tons. Dimensions: 164 × 31 × 10¾ feet. I.H.P.: 1,140 = 12·4 kts. Complement: 47.



GEMMA. *Official Photo, added* 1934.

**ERIDANUS** (Soerabaja, 1918). Displacement: 996 tons. Dimensions: 185½ × 29½ × 11½ feet.

**GEMMA** (A. F. Smulders, Schiedam, 1918). Displacement: 845 tons. Dimensions: 175 × 29½ × 10½ feet. I.H.P.: 800 = 12 kts. Complement: 44.

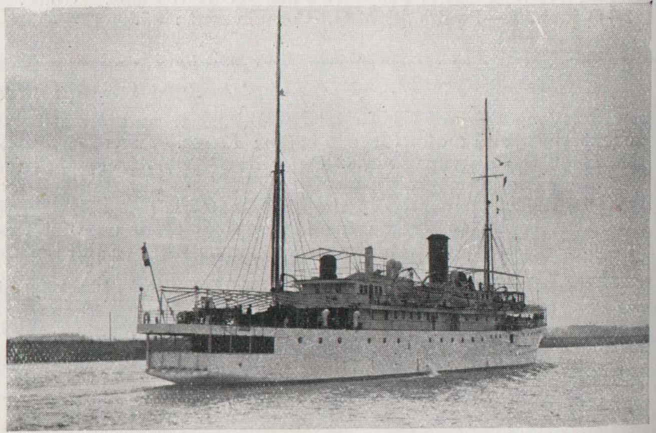


AREND. 1933 *Photo.*

**AREND** (May 21, 1929), **VALK** (Oct. 19, 1929). Both built by Fijenoord Co. for fishery protection duties in East Indies. Displacement: 1,011 tons. Dimensions: 229⅔ *p.p.*, 236 *o.a.* × 29½ × 9¼ feet. H.P.: 3,350=18 kts. Guns: 2—3 inch., 2 M.G. Complement: 61.

Each carries a seaplane.

*Note.*—Meaning of these names is "Eagle" and "Falcon."

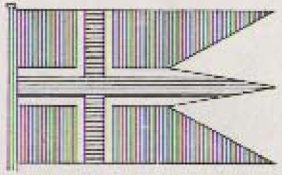


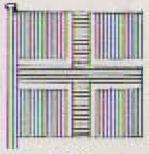
1937, *W.Crone.*

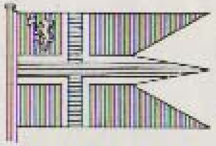
(Fitted for minelaying).

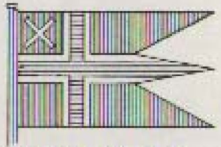
**RIGEL** (Nederlandsche Dok Mij, 1929). Displacement: 1,631 tons. Dimensions: 221½ × 36¼ × 10 feet. Guns: 2—3 inch, 2—12·7 mm AA. H.P.: 1,400 = 12·5 kts. Complement: 63. Specially fitted for use of the Governor-General of East Indies.

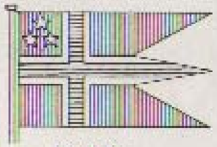
# NORWAY.

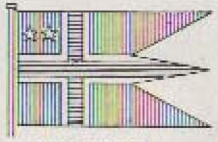

ENSIGN

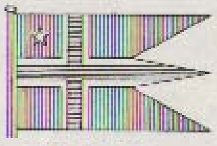

JACK


MINISTER OF DEFENCE

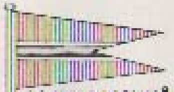

COMMANDER IN CHIEF (ADMIRAL)

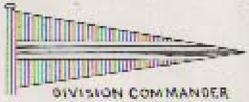

ADMIRAL

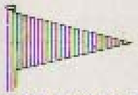

VICE ADMIRAL

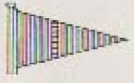

REAR ADMIRAL

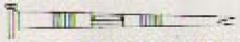
| | |
|---|---|
| Red | ▥ |
| White | ☐ |
| Blue | ▤ |
| Yellow | ▒ |

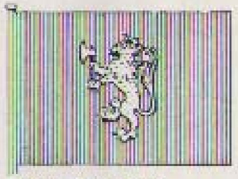

SQUADRON COMM^R (NOT OF ADMIRAL'S RANK)

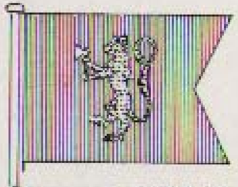

DIVISION COMMANDER

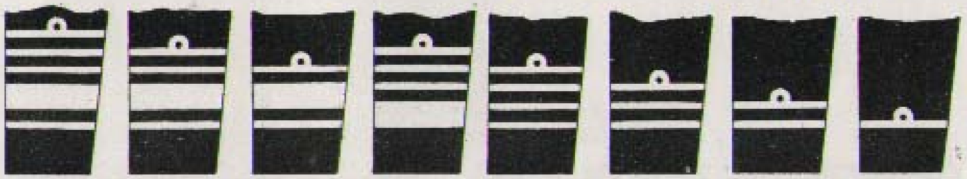

WARRANT OFFICER IN COMMAND


PENNANT OF SENIORITY


SUBORDINATE COMMANDING OFFICERS MINING DIVISION


ROYAL STANDARD


CROWN PRINCE'S STANDARD



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Admiral. | Vice-Admiral. | Kontre-Admiral | Komman-dör. | Kommandör-Kaptein. | Kaptein. | Löitnant. | Fenrik. |
| British equivalents. | *Admiral.* | *Vice-Ad.* | *Rear-Ad.* | *Commodore.* | *Captain.* | *Commander.* | *Lieut-Com. & Lieut.* | *Sub-Lieut.* |

In relative rank Doctors have the same *without curl*, and a *red* passe poil above upper stripe.
" " Paymasters " " *blue* " " " "
" " Warrant Officers " " " and with various branch marks above upper stripe.

**Modern Guns** (Armstrong and Bofors). (Details officially revised 1930.)

| Notation. | Designation | | Length in calibres | Model. * | Weight of Gun. | Weight of A.P. shot. | Initial velocity | *Max.* penetration firing A.P. capped at K.C. | | Danger Space against average warship, at | | | *Nom.* Rounds per minute |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 5000 yards. | 3000 yards. | 10,000 yards | 5000 yards. | 3000 yards. | |
| | c/m. | inches. | | | tons. | lbs. | ft. secs. | | | | | | |
| MEDIUM. | *20·9* | 8·2 | 44 | A | 18½ | 300 | 2300 | 6½ | 9¼ | 100 | 405 | 591 | 4 |
| | *14·91* | 5·9 | 46 | A | 7 | 100 | 2625 | 3 | 4½ | 67 | 215 | 440 | 8 |
| | 12 | 4·7 | 44 | B | 8 | 46 | 2625 | ... | ... | ... | ... | ... | 10 |
| | 12 | 4·7 | 44 | A | 2¾ | 44 | 2570 | ... | ... | ... | ... | ... | 10 |
| LIGHT. | *10·16* | 4 | 40 | B | 2 | 32 | 2545 | ... | ... | ... | ... | ... | 20 |
| | *7·6* | 3 | 50 | B | 1 | 12 | 2820 | ... | ... | ... | ... | ... | ... |
| | *7·6* | 3 | 40 | A | ⅗ | 12 | 2210 | ... | ... | ... | ... | ... | ... |
| | *7·6* | 3† | 28 | B | ⅜ | 12 | 1640 | ... | ... | ... | ... | ... | ... |
| | *7·6* | 3† | 21 | B | ¼ | 12 | 1500 | ... | ... | ... | ... | ... | ... |

* B—Bofors. A—Armstrong. † Anti Aircraft. There is also a 3 pdr. AA. gun and a 9 pdr. gun.

*Minister of Defence.*—Mr. F. R. Monsen. *Commander in Chief.*—Rear-Admiral Edgar Otto.

*Colour of Ships:* Coast Defence Ships, Destroyers, Torpedo Boats, Gunboats, &c., all light grey.

*General Notes.—Personnel:* About 850 permanent, 700 yearly conscripts, all seafaring men in reserve.

*Mercantile Marine.*—(From "Lloyd's Register," 1937). 1,901 Vessels of 4,347,612 gross Tonnage.

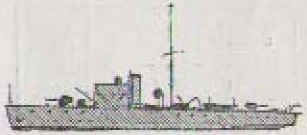
*Navy Estimates.*—1936-37, Kr. 12,091,220.

Мс 2/49

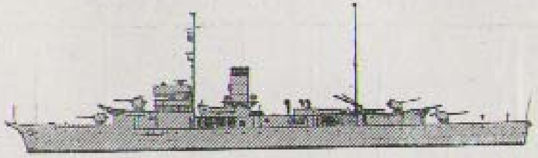
| | 39г | 49г |
|---|---|---|
| ББо | 4 | – |
| ЭМ | 6 | 7 |
| М | 25 | 5 |
| Кор | – | 3 |
| ТЩ | 9 | 5 |
| СК | 3 | 3 |
| Ох п/л | – | 4 |
| ТК | 1 | 19 |
| ТЩ и КТЩ | – | 13 |
| МЗ | 11 | 1 |
| Всп | 2 | 2 |

Передано Англией 1/49

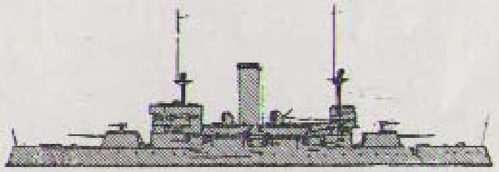
ЭМ – 7 (в т.ч. 4 типа „С" [illegible]
МП – 5
Кор – 3
ТЩ – 7
ТК – 10



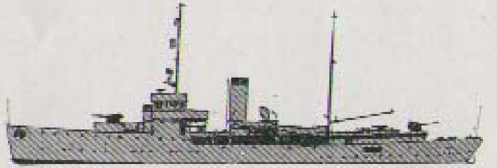
Glommen. Laugen.



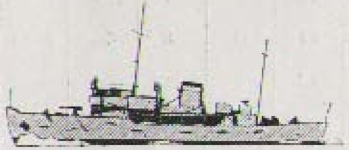
Olav Tryggvason.



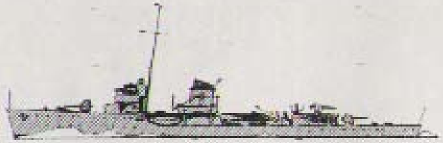
Harald Haarfagre. Tordenskjold.



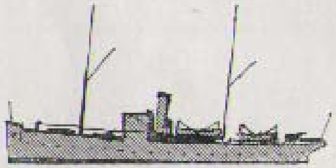
Fridtjof Nansen.



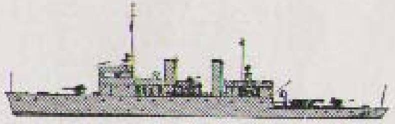
Nordkapp. Senja.



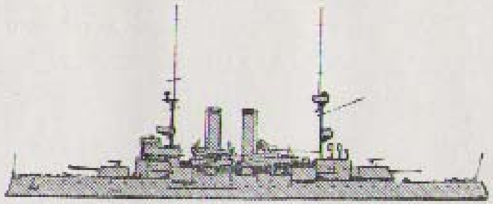
Sleipner.



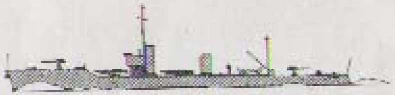
Heimdal.



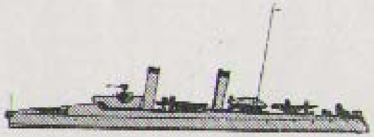
Froya.



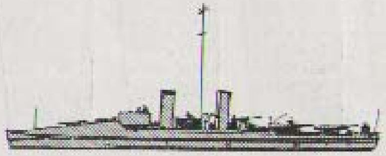
Norge. Eidsvold.
(Topmasts now shorter.)



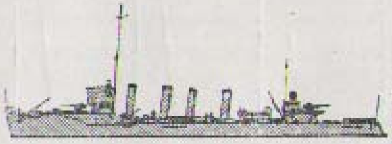
Snogg. Stegg. Trygg.



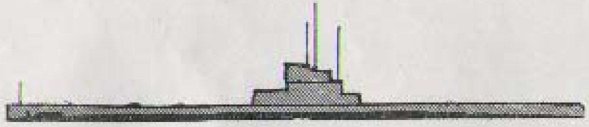
Laks *class*



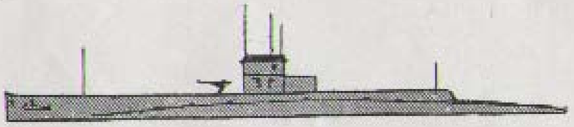
Kjell. Skarv. Teist.



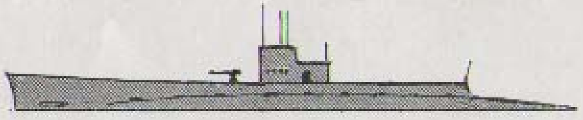
Garm. Troll. Draug.



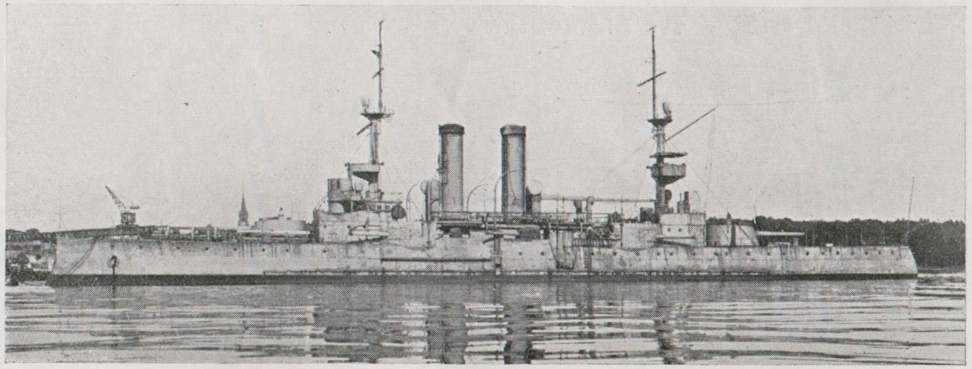
"A" *Class.*



"B" 1—4



"B" 5—6



1933 *Photo, Official.*

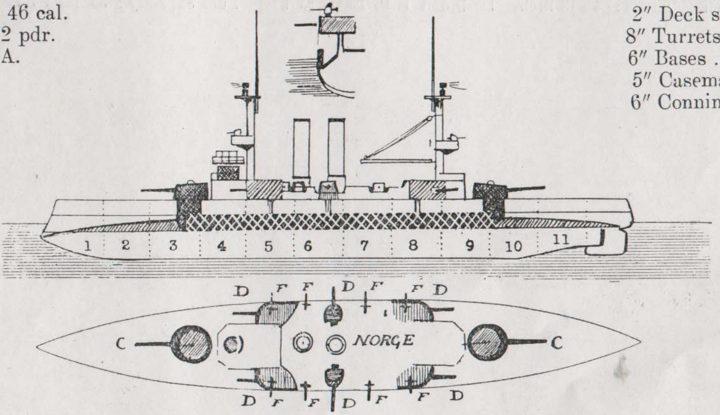
†1) **NORGE** (March, 1900), 2)† **EIDSVOLD** (June, 1900). 1) 2) 9.4.40 [illegible] 9/4

Displacement, 4166 tons. Complement, 270.

Length (*p.p.*), 290 feet. Length (*over all*), 301¼ feet. Beam, 50½ feet. *Max.* draught, 17⅔ feet. *Mean* draught 16½ feet.

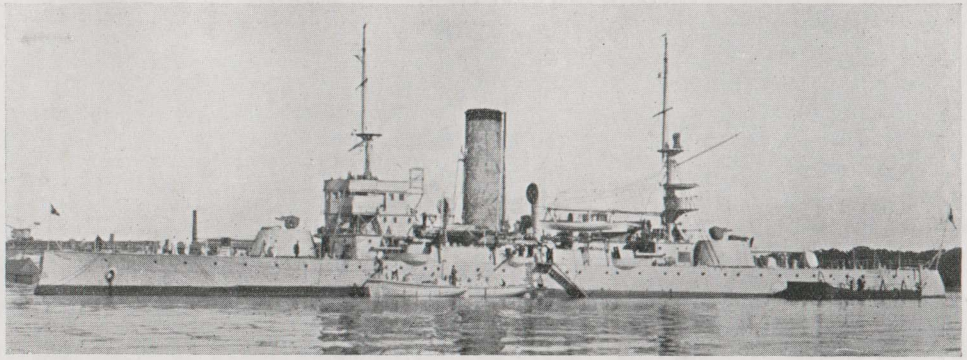
Guns:
- 2—8·2 inch, 44 cal.
- 6—5·9 inch, 46 cal.
- 8—3 inch 12 pdr.
- 2—3 pdr. AA.

Armour (Krupp):
- 6″ Belt.............. ▩
- 2″ Deck slopes ...
- 8″ Turrets ......... ▨
- 6″ Bases ........... ▨
- 5″ Casemates (NC) ▨
- 6″ Conning tower ▨



Machinery: 2 screws. Boilers: 6 Yarrow. Designed H.P. 4500=16·5 kts. Coal: *normal* 440 tons; *maximum* 550 tons.

*Notes.*—Built by Armstrong. Completed 1900–1901. Machinery by Hawthorn, Leslie & Co. Excellent seaboats, and still good for 15 kts. On plans C = 8·2 inch guns; D = 5·9 inch; F = 3 inch 12 pdr. guns.



TORDENSKJOLD.

1933 *Photo, Official.*

tekn.
~~**HARALD HAARFAGRE**~~ (Jan., 1897), †**TORDENSKJOLD** (March, 1897) 1) 45

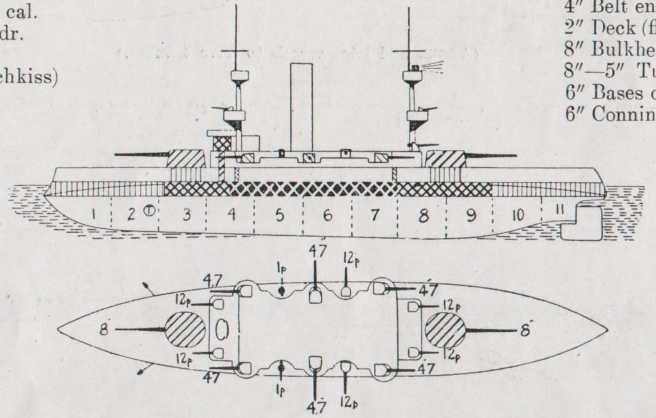
Displacement, 3858 tons. Complement, 249.

Length (*p.p.*), 279 feet. Length (*over all*), 304 feet. Beam, 48½ feet. *Maximum* draught, 17⅔ feet. *Mean* draught, 16½ feet.

*Note to Plan.*—Forebridge now built up as in photo.

Guns (Armstrong):
- 2—8·2 inch, 44 cal.
- 6—4·7 inch, 44 cal.
- 6—3 inch 12 pdr.
- 2—3 inch AA.
- 2—1 pdr. (Hotchkiss)

Armour (Harvey):
- 7″ Belt (amidships) ▩
- 4″ Belt ends ...... ▥
- 2″ Deck (flat on belt)
- 8″ Bulkheads ......
- 8″—5″ Turrets ... ▨
- 6″ Bases of turrets ▥
- 6″ Conning tower ▩



Machinery: Boilers: 3 cylindrical. 2 screws. Designed H.P. 4500=16·9 kts. (made 17·2 on *trial*, 1897-8). Coal: *normal* 230 tons; *maximum* 550 tons.

*Notes.*—Built by Armstrong, and completed 1897–8. Engined by Hawthorn, Leslie & Co. Belt is 174 feet long by 6½ feet deep. Excellent seaboats, good for 14 kts. still.

## 5+3 Destroyers (*Torpedobaatsjagere*)

англ.
44-45
1710т
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4-40
8-533
6т 36м
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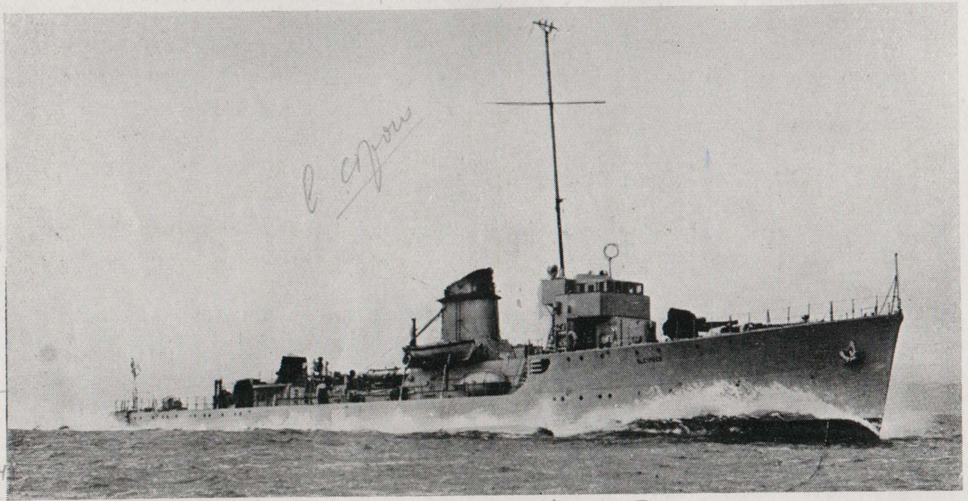
3.

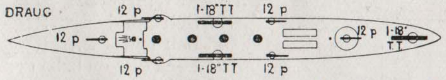

в строю

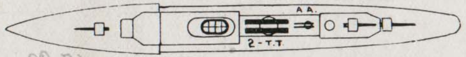
т п/л 19.8.4[3]
тк 14.4.43
Лаланган
в тк 6.6.44
Норманд.

SLEIPNER. Gyller Odin Balder Tor 1937, *Official.*

+**Aeger** (Sept., 1936), **Sleipner** (May 7, 1936), and 3 more, to be laid down 1938. *Standard* displacement: 550 tons (715 tons *full load*). Complement: 72. Dimensions: 236¼ (*p.p.*), 243¾ (*o.a.*) ×25½ × 7 feet (*mean*), 9 feet (*max.*). Guns: **3**—4 inch, **1**—40 mm. AA., **2** M.G., **4** D.C.T. Fitted for minelaying. Torpedo tubes: **4**—21 inch, paired. Machinery: 2 De Laval geared turbines. 2 shafts. Designed H.P.: 12,500 = 30 kts. 3 water-tube boilers, working pressure 450 lbs. Oil fuel: 100 tons. All built at Horten.

DRAUG





в строю

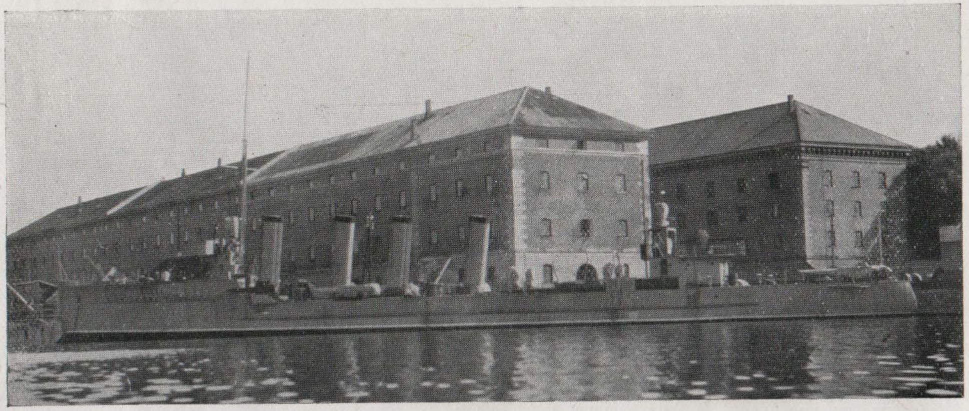
1050т
27уз
1) -9.4.40 al

(AEGER and later vessels to have 4 tubes.)

2) - 2-102
3) - 4-533

20
0 320

достав.
4-120
-12,7 4-533



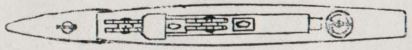
GARM

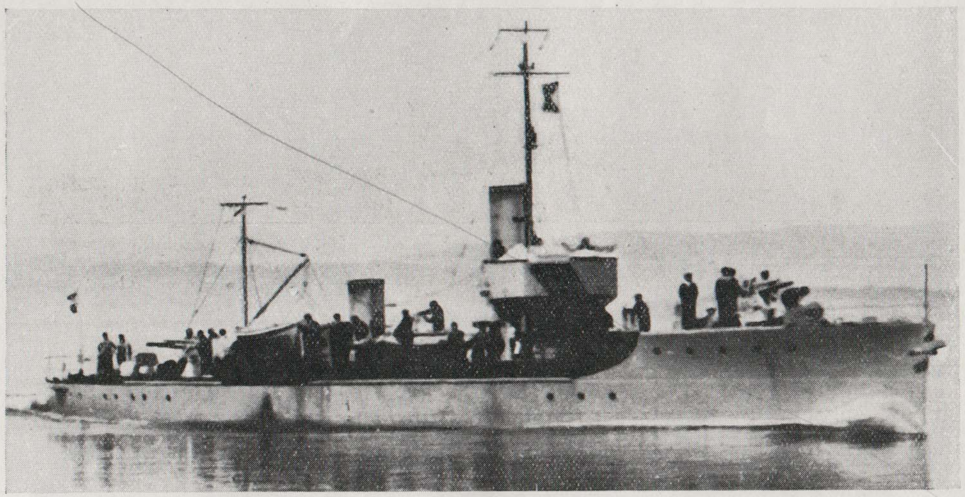
+**Garm** (1913), **Draug** (1908), and +**Troll** (1910). All built at Horten. 540 tons. Dimensions: 227 × 23½ × 8¾ feet. Armament: **6**–3 inch, **3**—18 in. tubes. H.P. 7500 (8000 in *Garm*)=27 kts. Reciprocating engines in last two, turbines in *Garm*. Coal: 95 tons. Complement, 76.

Д) 1) 26.4.40 Англ. кор
3) 9.42 списан ав. мре

## 24 Torpedo and Patrol Boats.

### 1st Class (*Större Torpedobaater*).

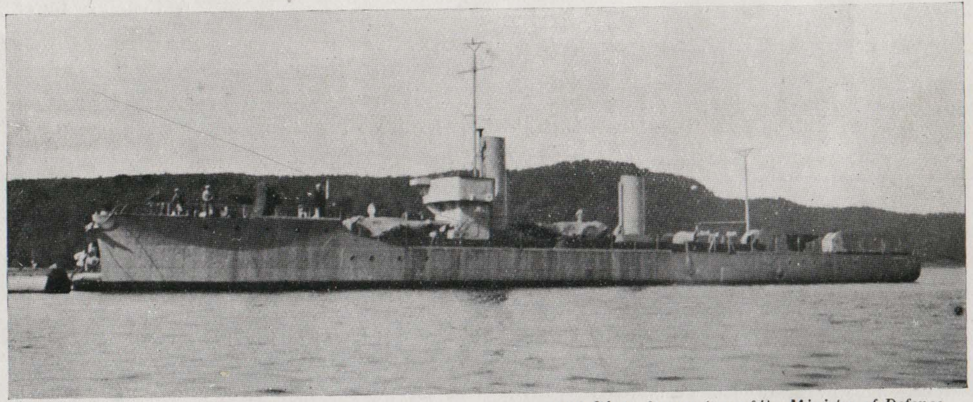




*Photo, by favour of "Flottes de Combat."*

3 boats: **Snögg,** +**Stegg,** +**Trygg** (Horten, 1916-17). 220 tons. Dimensions: 173·9 × 18 × 5·2 feet. Guns: **2**—3 inch. Tubes: **4**—18 inch. Designed H.P. 3500=25 kts. Fuel capacity: 30 tons oil. Complement, 33.

2) 20.4.40 Англ
3) -4.40 Англ
1) Шпицер

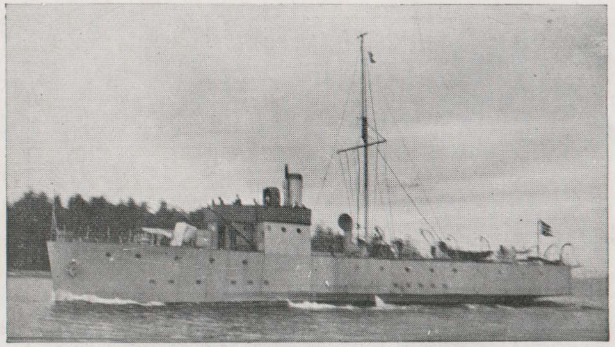


SNÖGG. 1930 *Photo, by courtesy of the Ministry of Defence.*

+ Bodö 248т ✠ 4.1.43

1K - 10yt [illegible] MTB 128T 30m 2-57 2-20 8-13 4-450,

## Minelayers—*continued.*



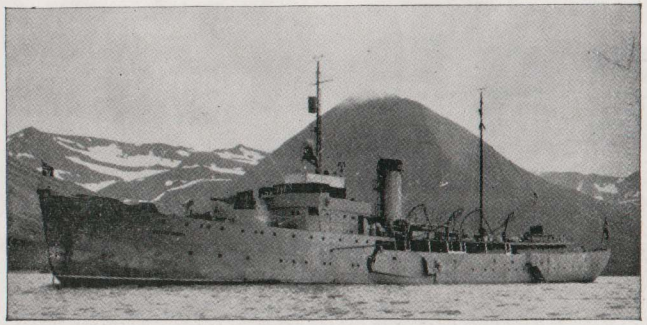
GLOMMEN. 1921 *Photo, by courtesy of the Ministry of Defence*

**GLOMMEN** (1917), **LAUGEN** (1917). Both Akers Yard, Oslo. 335 tons. Complement: 39. Dimensions: 137·8 × 27·9 × 6·2 feet. Guns: 2—3 inch. Designed H.P.: 170 = 9·5 kts. Coal: 21 tons. Each carries about 120 mines.

## Minesweepers.

**2** *building* at Horten. Over 300 tons.

## Fishery Protection Vessels.



1931 *Photo, Comm. Steen Steensen.*

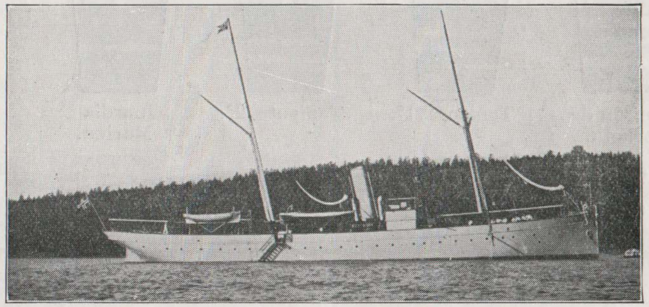
**FRIDTJOF NANSEN** (Horten, 1931). Displacement: 1,300 tons (full load, 1,545 tons). Complement, 70. Dimensions: 239·3 × 34·7 × 16·7 feet. Guns: 2—4 inch, 2—3 pdr. I.H.P. 2,000 = 15 kts. Coal: 150 tons + 95 tons oil.

(Wrecked in 1933, but salved in following year and refitted in 1936).

## Fishery Protection Vessels—*continued.*

(*For photograph, see Addenda*).

**NORDKAPP** (Aug. 18, 1937), **SENJA** (Aug. 25, 1937). (Horten). *Standard* displacement: 243 tons (275 tons *full load*). Complement: 22. Dimensions: 130½ × 21½ × 7½ feet. Guns: **1**—47 mm. 2 Sulzer Diesels, with electric drive. 1 shaft. H.P.: 830 = 13·75 kts. Fuel: 30 tons.

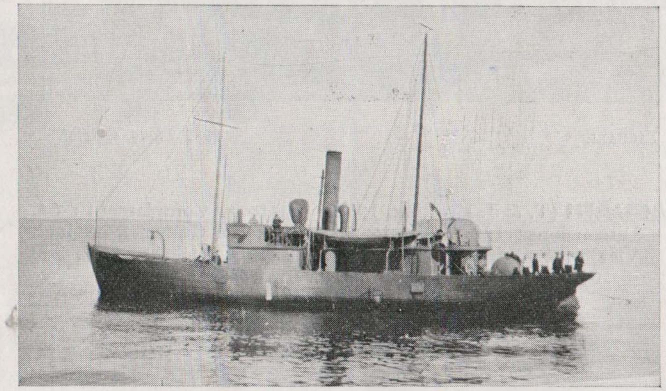


*Photo, Wilse, Oslo.*

**HEIMDAL** (1892). 640 tons. Complement, 62. Length, 181 feet. Draught, 13 feet. Guns: **4**—3 inch. H.P. 625 = 12 kts. Coal: 92 tons.

**MICHAEL SARS** (1900) 300 tons. 126 × 23 × 11 feet. Guns: 2—3 pdr. Complement, 27.

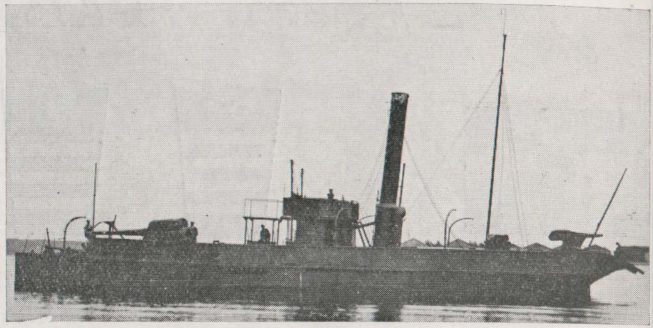
## Submarine Depot Vessel.



1934 *Photo, Official.*

**SARPEN** (1860). (Rebuilt, 1918). 187 tons. Guns: **2**—9 pdr., **1**—1 pdr. Speed: 9 kts.

## Old Gunboats.

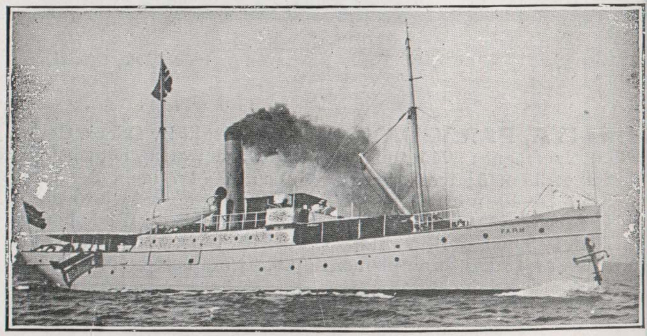


VALE. 1934 *Photo, Official.*

| *Name.* | *Date.* | *Tons.* | *Crew.* | *Guns.* | *Speed kts.* |
|---|---|---|---|---|---|
| *Tyr* ... ... | 1888 | 281 | 44 | **1**—4·7 in., **1**—12, +**2**—1 pdr. | 10·5 |
| *Gor* ... ... | 1885 | 276 | 44 | **1**—4·7 in., 1—12 +**2**—1 pdr. | 10·5 |
| *Vidar* ... | 1881 | 254 | 41 | **1**—4·7 in., **1**—3, +**2**—1 pdr. | 9·5 |
| *Brage* ... | 1876 | | | | 8·5 |
| *Nor* ... ... | 1878 | 254 | 38 | | 8·5 |
| *Vale* ... ... | 1878 | 233 | 41 | **1**—4·7 in. **3**—1 pdr. | 8 |
| *Uller* .. | 1874 | | | | |

(All fitted as Minelayers.)

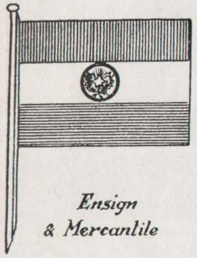
## Transport (*Transportskib.*)



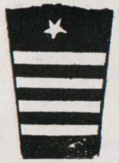
1918 *Photo, Wilse, Oslo.*

**FARM** (1900). 300 tons. Complement, 32. Guns: **2**—9 pdr. **2**—1 pdr. Speed: 10 kts.

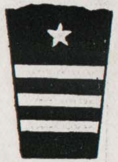
# PARAGUAY.



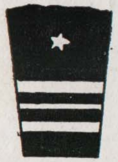
*Ensign*
*& Mercantile*



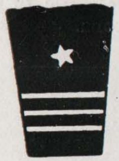
Capitán de
Navio.



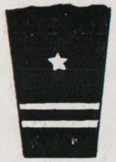
Capitán de
Fragata.



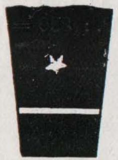
Capitán de
Corbeta.



Teniente 1°.

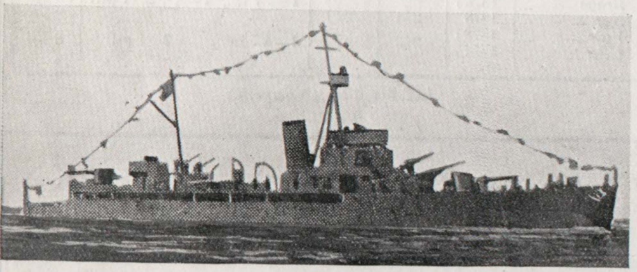


Teniente 2°.



Guardia
Marina.

*Minister of Defence:* Dr. Don Juan Stefanich.
*Director of Naval Department:* Commander D. M. Aponte.

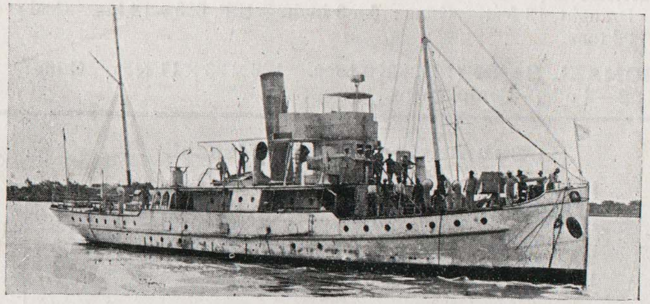


HUMAITA.

1932 *Photo, Official.*

**UMAITA, PARAGUAY** (both 1930). Built by Odero, Genoa. Displacement: 745 tons (865 tons full load). Dimensions: 230 × 35 × 5½ feet *draught*. Guns: 4—4·7 inch, 3—3 inch AA., 2—40 mm. AA. H.T. Armour: ½″ side amidships, ⅓″ deck, ¾″ C.T. Parsons turbines and oil-fired boilers. H.P.: 3,000 = 18·5 kts. Oil: 240 tons. Radius: 1,700 miles at 16 kts. Complement: 86. Completed 1930.

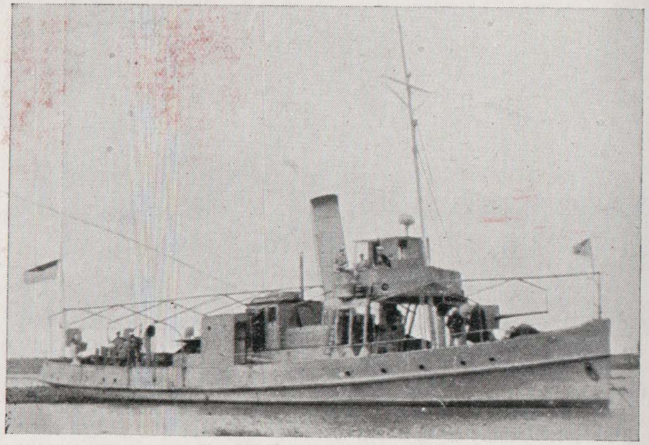
*Note*—Mines are included in the equipment of these vessels.



TACUARI.

1932 *Photo, Official.*

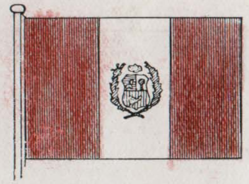
**TACUARI** (T. & J. Hosking, 1910). 150 tons. Complement: 54. Dimensions: 129·2 (*p.p.*) × 24·8 × 6 feet. Guns: 2—3 inch Vickers, 2—3 inch Armstrong, 2—37 mm. Vickers. H.P. 300 = 10 kts. Wood.



1932 *Photo, Official.*

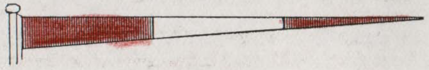
**CAPITAN CABRAL** (Werf-Conrad, Haarlem, 1907). 180 tons. Complement, 47. Dimensions: 98·4 (*p.p.*) × 23·5 × 6 feet. Guns: 1—3 inch Vickers, 2—37 mm. Vickers. H.P. 300 = 12·5 kts. Wood.

# PERU.

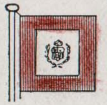


National Flag.

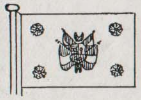
Mercantile flag the same but without centre device.



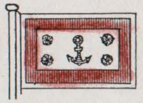
Pendant.



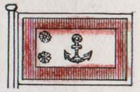
Jack.



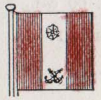
President.



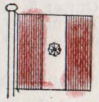
Minister of Marine.



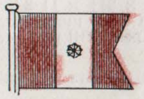
Chief of Staff.



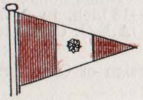
Vice-Admiral.



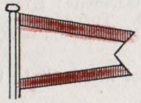
Rear-Admiral.



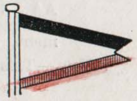
Captain.



S.N.O.



S.O. Destroyer Flotilla.



S.O. Submarine Flotilla.

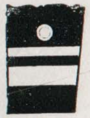
*Colour of Ships*: Grey.

*Minister of Marine and Air:*

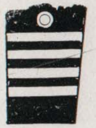
**Uniforms.** (Device is a radiant sun, *without* circle round it as shown below.)

As Contra-Almirante but with 2 thin stripes

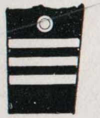
Vice-Almirante. *Vice-Admiral.*



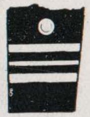
Contra-Almirante. *Rear-Admiral.*



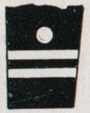
Capitán de Navio. *Captain.*



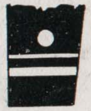
Capitán de Fragata. *Commander Senior*



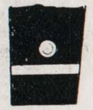
Capitán de Corbeta. *Commander. Junior*



Teniente 1°. *Lieut. Comm'r.*



Teniente 2°. *Lieut.*

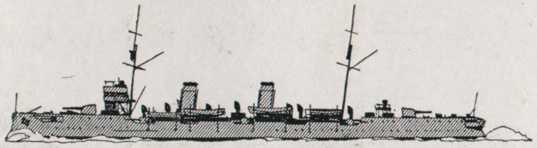


Alferez de Fragata. *Sub. Lieutenant*

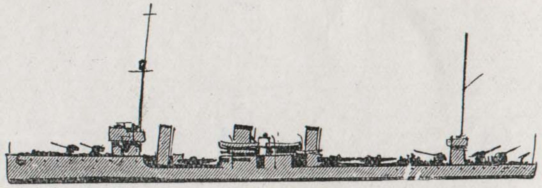
All branches have the same insignia: Engineers are distinguished from doctors who wear respectively, instead of the Rising Sun, a propeller and a caduceus.

Mercantile Marine, 1937: 30 vessels of 37,198 tons *gross.*

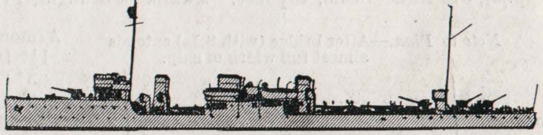
*Form of Address:* Capitan de Navio Don——, B.A.P.——.



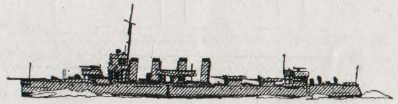
ALM. GRAU (COR. BOLOGNESI similar, but no poop).



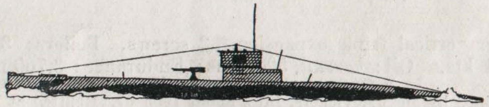
ALMIRANTE GUISE.



ALMIRANTE VILLAR.

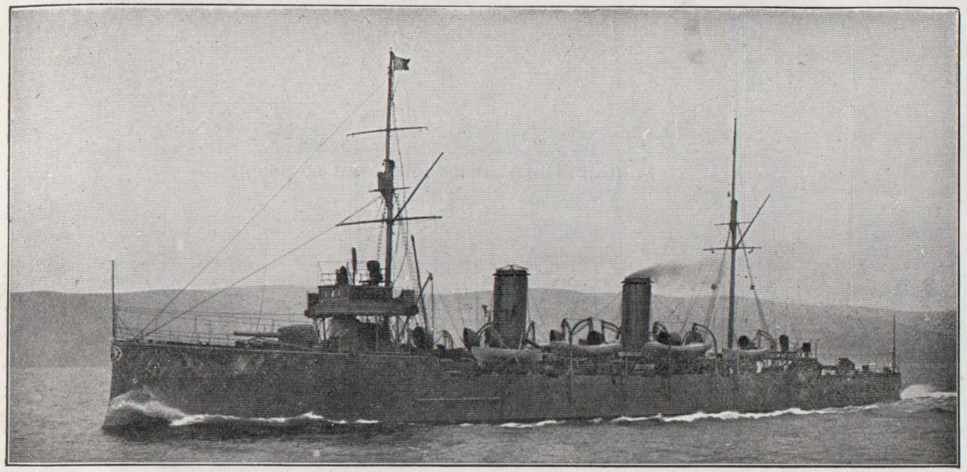


T. RODRIGUEZ.



R. 1—4.

## Cruisers.



CORONEL BOLOGNESI. The *A. Grau* is identical *except* that she has a poop.

**ALMIRANTE GRAU** (March 27, 1906) & **CORONEL BOLOGNESI** (Sept. 24, 1906).

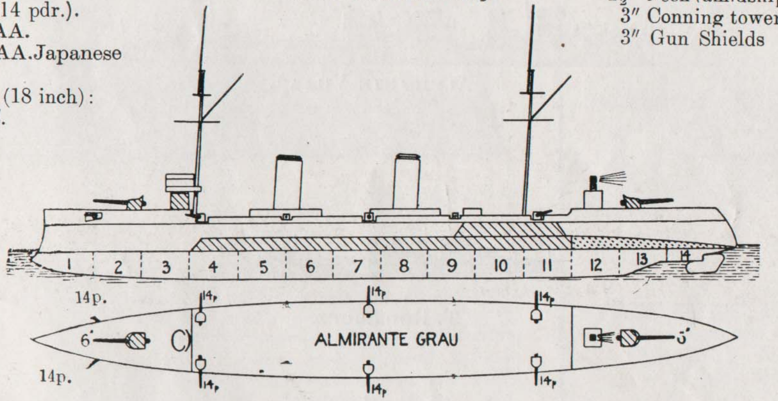
Displacement: 3,200 tons. Complement, 315.

Length (*p.p.*), 370 feet. Beam, 40½ feet. *Maximum* draught, 14¼ feet.

Guns (Vickers):
2—6 inch, 50 cal.
6—3 inch (14 pdr.).
2—3 inch AA.
4—20 mm. AA. Japanese
5—M.G.
Torpedo tubes (18 inch):
2 *submerged*.

*Note to Plan.*—After bridge (with S.L.) extends almost full width of ship.

Armour:
1½″ Deck (amidships) = ▨
3″ Conning tower .. ▨
3″ Gun Shields ... ▨



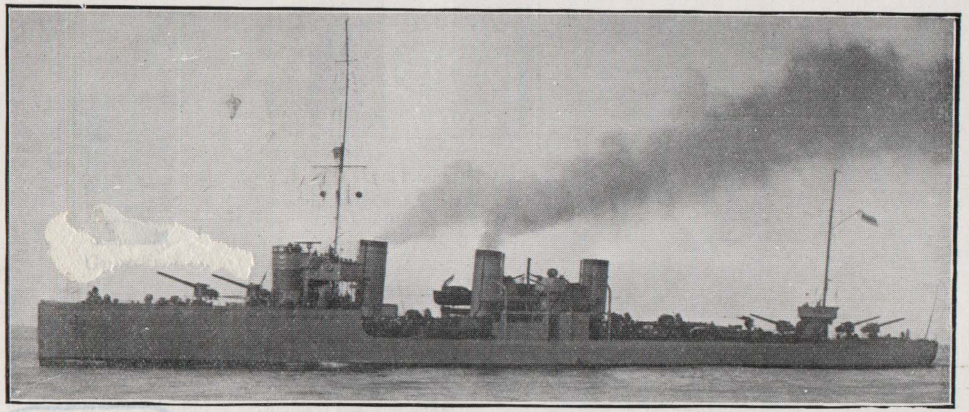
Machinery: 4 cylinder vertical triple expansion. 2 screws. Boilers: 8 Yarrow (new in 1934). Designed H.P. 14,000 = 24 kts. Oil: *normal*, 500 tons; Endurance: 3,700 miles at 10 kts.

*General Notes.*—Built and engined by Messrs. Vickers, Ltd., about 1905–07. Refitted at Balboa, boilers being re-tubed and modified for oil burning, 1923–25. Both reboilered by Yarrow, 1934-35. Both ships are now good for 23·5 kts. at sea. *Grau* is at present employed as fleet flagship.

*Gunnery Notes.*—Italian Giradelli type training indicators are believed to have been added to gunnery equipment 2 after 3 inch (14 pdr.) guns replaced by new ones of Japanese manufacture, 1936.

## 2 Destroyers.

(Both captured by British Cruisers and Destroyers in the Baltic, in Dec., 1918, and transferred to Estonia, from whom they were purchased in 1933.)

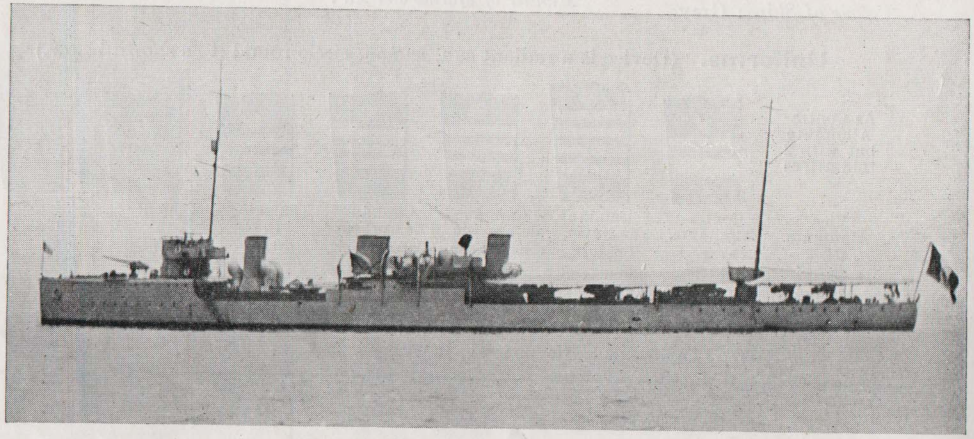


1929 *Photo.*

**Almirante Guise** (ex *Lennuk*, ex-Russian *Avtroil*). Launched at Tallinn by Reval Shipbuilding Co., 1915, completed 1917. Displacement: 1,785 tons. Dimensions: 344½ × 31¼ × 11·8 feet. Guns: **5**—4 inch, 60 cal., **2**—20 mm. AA., 3 M.G. Torpedo tubes: **9**—18 inch, in 3 triple deck mountings. Designed to carry and lay 80 mines. Designed S.H.P. 32,000 = 30 kts. A.E.G. Curtis turbines. Oil fuel: 450 tons = 2,400 miles at 15 kts. Complement, 142.

*Note.*—This vessel was built to the design of Chantiers et Ateliers Augustin Normand, Le Havre.

(Plans of these 2 ships as those of Russian *Karl Marx* and *Uritski* types, respectively.)



1935.

**Almirante Villar** (ex-*Vambola*, ex-Russian *Spartak*, ex-*Mikula Maklei*). Launched by Putilov Works, Petrograd, 1915, and completed 1918. Displacement: 1.550 tons. Dimensions: 315·7 × 30½ × 12·15 feet. Guns: **4**—4 inch, 60 cal., **2**—20 mm. AA., **3** M.G. Torpedo tubes: **9**—18 inch, in 3 triple deck mountings. Designed to carry and lay 80 mines. Designed S.H.P. 32,000 = 30 kts. A.E.G. Curtis turbines. Oil fuel: 420 tons = 2,500 miles at 15 kts. Complement, 142.

## Torpedo Boat.

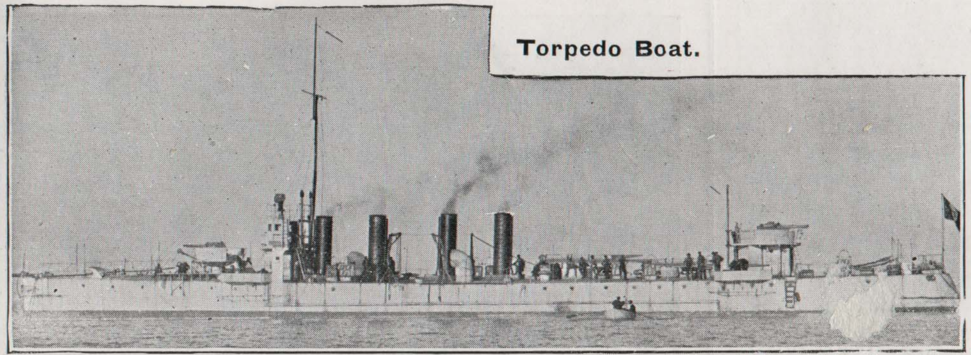


*Photo by courtesy of Messrs. Schneider et Cie*

1 *Schneider-Creusot:* —**Teniente Rodriguez** (1909, ex-*Actée*). 490 tons. Dimensions: $212 \times 21{\cdot}3 \times 14^{3}$ feet. H.P. 8,600 28 kts. (present best speed 25 kts.). Schneider-Zoelly turbines, du Temple boilers (retubed 1922). Coal: 100 tons = 1,200 miles at 10 kts. Armament: **6**—65 mm., **2**—20 mm. AA., **2**—18 inch tubes. Complement 60. This vessel is regularly employed in the Training of Cadets. She was built as a French warship, but was acquired by Peru on completion in 1911.

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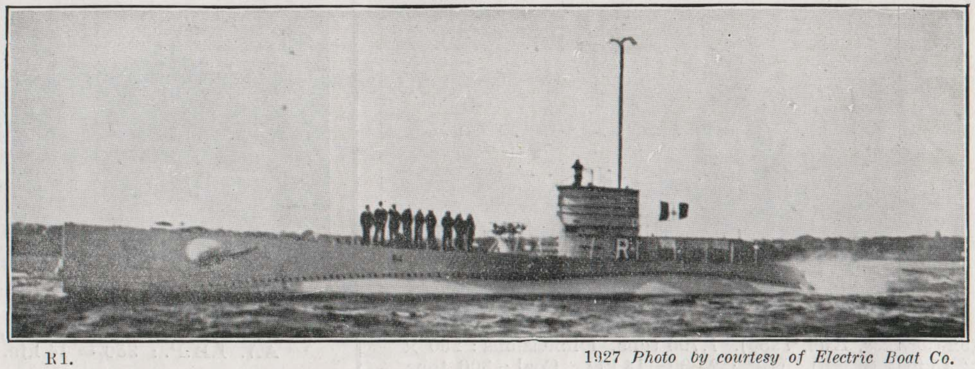
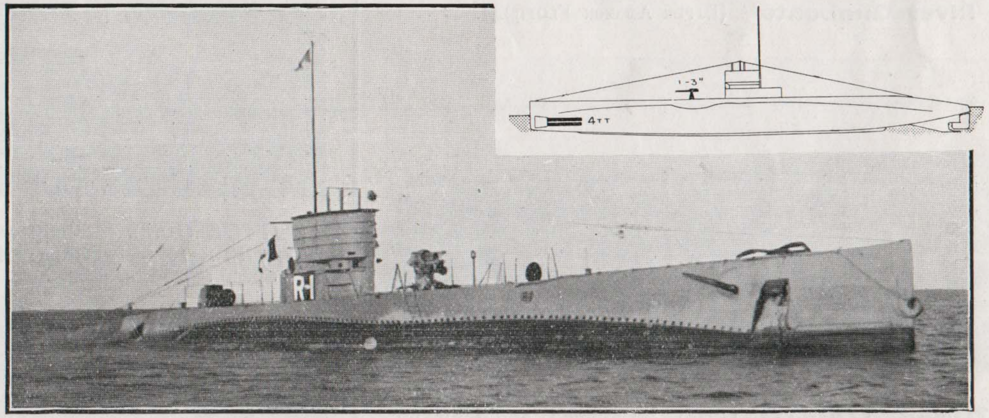
## Motor Launches.

4, built in U.S.A. Length 90 feet. Further particulars wanted.

## Submarines.



R1. 1927 *Photo by courtesy of Electric Boat Co.*

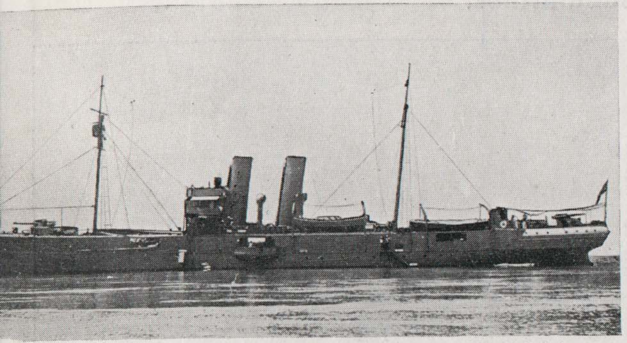


R1. *Official Photo*, 1927.

4 *Electric Bot Co.* design: R 1 (April, 1926), R 2 (May, 1926), R 3 (April 21, 1928), R 4 (May 10, 1928). Built by Electric Boat Co, Groton, Conn. *Surface* displacement: 576 tons. *Submerged* displacement: 682 tons (exclusive of non-watertight parts), 755 tons (inclusive of such parts). Dimensions: 186¼ (*o.a.*), 178½ (*pp*) × 17½ × 15 feet. 2 Nelseco Diesel engines, together H.P.: 880 = 14·5 kts. Electric motors of 1,000 B.H.P. = 9·5 kts. Radius of action: 8,000 miles. Guns: **1**—3 inch. Tubes: **4**—21 inch (bow). Complement: 30.

*Note.*—*R* 1, *R* 2, on delivery, completed an unescorted trip from Connecticut to Callao, without mishap, arriving in good order. *R* 3, *R* 4 delivered in summer of 1928. *R* 1, *R* 2 were refitted at builders' yard in 1935, *R* 3 and *R* 4 in 1936.

## Depot Ship (Classed as Cruiser).

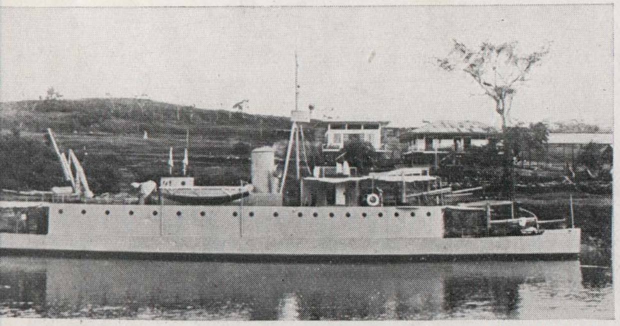


MA. 1935, *Official.*

**A** (ex-*Socrates,* Kiel, 1880). 1,790 tons. Dimensions : 250 × 5 × 15 feet (*mean*). H.P.: 2,000=14 kts. Coal : 300 tons. Guns : **3**—4 inch, **4**—3 pdr., **2**—20 mm. AA., **2** M.G. Believed quipped for minelaying. Complement: 150.

-This Ship was completely refitted 1927–8 and can now make her designed speed. Radius is 3,000 miles at 10 kts.

## River Gunboats (Upper Amazon Flotilla).

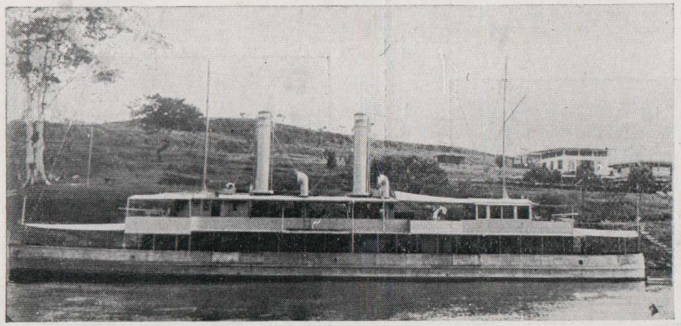


1935, *Official.*

**AZONAS, LORETO** (1934). Designed and built by Electric Boat Co., Groton, Conn. Displacement : 250 tons *standard*). Length : $153\frac{1}{4}$ feet. Guns : **4**—3 inch AA., 2—3 pdr., **2** M.G. H.P. : 750 = 15 kts.

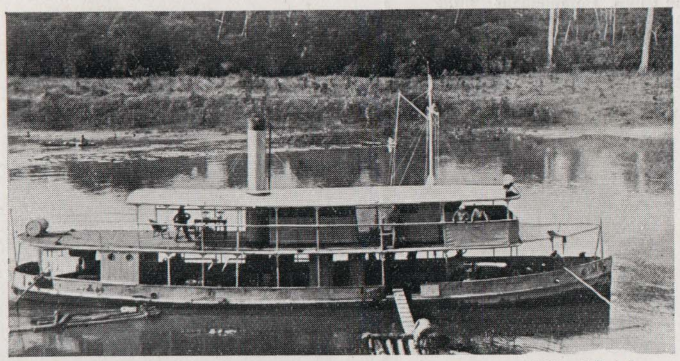
**O** (Yarrow, 1920). Steel. 98 tons. Dimensions : 100 (*p.p.*) $101\frac{1}{2}$ (*o.a.*) × 18 × 3 feet. Guns : **4**—47 mm. (3 pdr.), **2**— 37 mm., **2**—20 mm. AA., **4** M.G. Machinery : Triple expansion. H.P. : 250 = 12 kts. Yarrow boilers. Fuel : 380 cubic feet wood. Complement : 22.

## River Gunboats—*continued.*



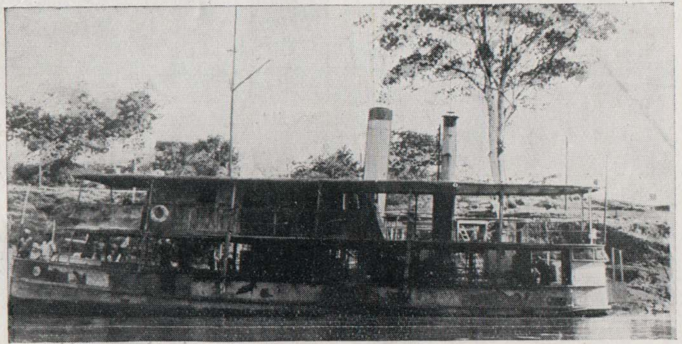
AMERICA. 1935, *by courtesy of Ministry of Marine.*

**AMERICA** (1904). Steel. 240 tons. Dimensions : 133 × $19\frac{1}{2}$ × $4\frac{1}{2}$ feet. Guns : **2**—65 mm., **3**—47 mm. (3 pdr.), **2**—20 mm. AA. I.H.P. : 350 = 14 kts. Coal : 42 tons. Complement : .



1935, *Official.*

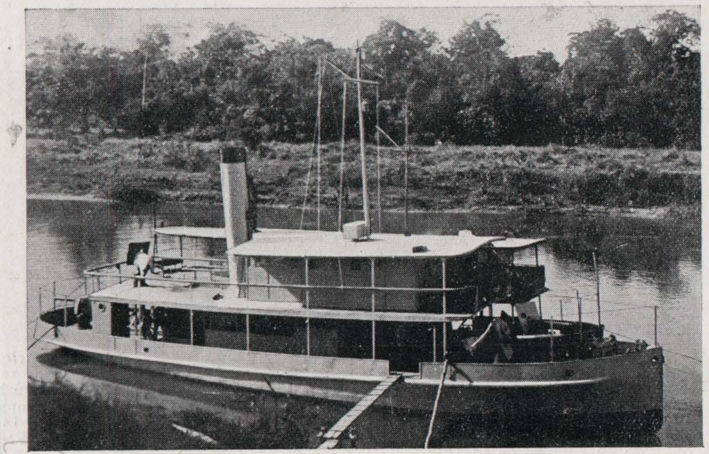
**IQUITOS** (1875). Rebuilt 1896. 50 tons. Dimensions : 77 × 12 × $7\frac{1}{2}$ feet. Guns : **4**—37 mm., **2**—20 mm., **2** M.G. Speed : 7·5 kts.



1935, *Official.*

**CAHUAPANAS** (1896). 30 tons. Dimensions : 65 × $12\frac{1}{2}$ × $3\frac{1}{2}$ feet. **2** M.G. Speed : 7 kts.

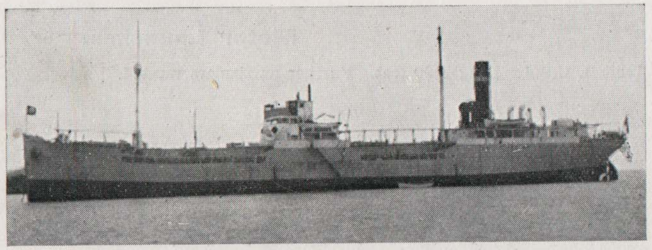
## River Gunboats—*continued.*



**CORONEL PORTILLO** (ex-*San Pablo*). 49 tons net. Dimensions : $80\frac{1}{3}$ × $16\frac{1}{4}$ × 4 feet. Compound engines. Speed : under 7 kts.

*Note.—Iquitos, Cahuapanas* and *Cor. Portillo* are all converted merchant vessels.

## Oiler.



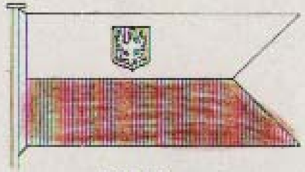
**PARIÑAS** (ex-*Sjömand*). (Thornycroft, 1921). 2,820 tons *gross.* Dimensions : 300 × 44 × $21\frac{1}{2}$ feet. Machinery : Turbines. I.H.P. : 1,600 = 10 kts. Oil : 560 tons. Tanks : 4,300 tons.

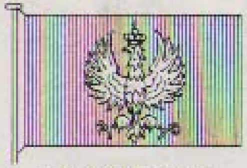
## Transport.

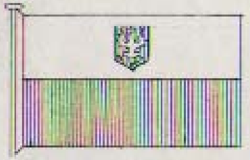
**RIMAC** (ex-*Eten,* ex-*Rhakotis*). (Blohm & Voss, Hamburg, 1907). 6,848 tons *gross.* Dimensions : $485\frac{1}{2}$ × 53 × 26 feet. I.H.P.: 3,200 = 12 kts. Coal : 1,600 tons.

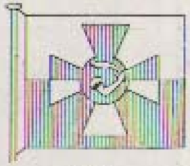
# POLAND.

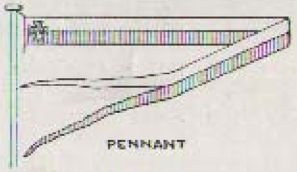
## Flags.

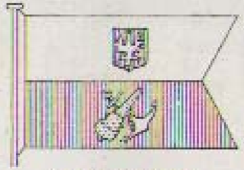

ENSIGN

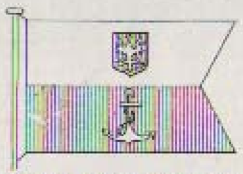

PRESIDENT'S FLAG *

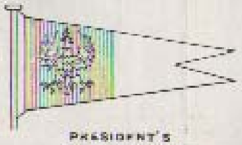

MERCANTILE ENSIGN

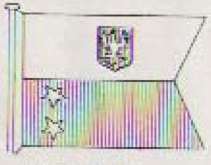

JACK

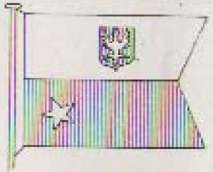

PENNANT

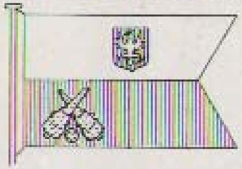

MINISTER OF WAR

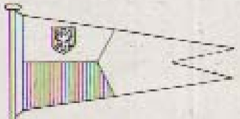

CHIEF OF NAVAL DEPARTMENT


PRESIDENT'S ROAD PENDANT.

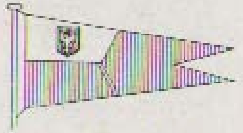

VICE ADMIRAL

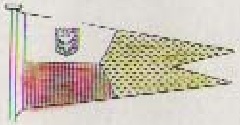

REAR ADMIRAL

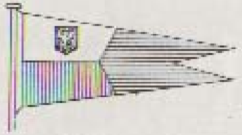

GENERAL OF POLISH ARMY

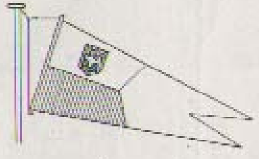

COMMODORE

### DIVISIONAL COMMANDERS


C.O. OF FLEET WHEN NOT A COMMODORE
C.O. OF RIVER FLOTILLA


C.O. OF COASTAL DEFENCE


C.O. OF DIVISION


S.N.O. (HARBOUR)

▥ Red ▤ Blue ▨ Green ░ Yellow □ White

**Note.**—The Emblem in the centre of the Jack is a flesh-coloured arm holding a steel-blue scimitar with gold hilt. The covering over shoulder of the arm is pale blue and has a gold-tasselled fringe.

* President's flag now has a crenated border.

*Minister of War.*—Lieut.-General Kasprzycki.

*Chief of the Naval Department.*—Rear-Admiral G. Swirski.

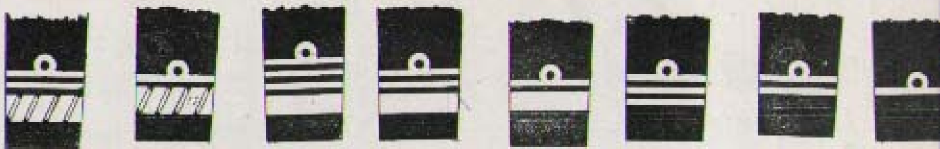
*Chief of Naval Staff.*—Captain K. Korytowski.

*Personnel.*—325 officers, 3,000 men; total, 3,325.

*Colour of Warships.*—Grey-green.

## Uniforms.

(a)—Polish Rank. (b)—Equivalent British Rank.



(a) Wice-Admiral.
(b) *Vice-Admiral.*

(a) Kontr.-Admiral.
(b) *Rear-Admiral.*

(a) Komandor.
(b) *Captain.*

(a) Komandor Porucznik.
(b) *Commander.*

(a) Komandor Podporucznik.
(b) *Commander.*

(a) Kapitan.
(b) *Lieut.-Commdr.*

(a) Porucznik.
(b) *Lieutenant.*

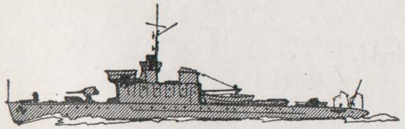
(a) Podporucznik.
(b) *Sub-Lieut.*

## Arsenals, Shipbuilders, &c.

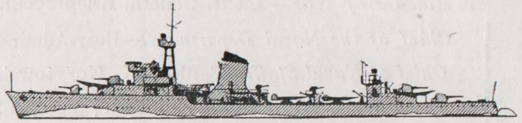
Naval base and dockyard is under development at Gdynia.
Naval College is temporarily established at Torun.

## New Construction Programme.

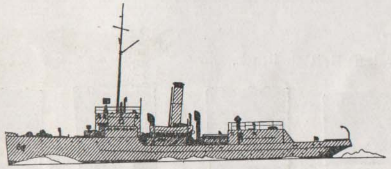
A plan is under consideration for the construction in ten years of 2 battleships of 25,00 tons; 1 Aircraft Carrier; 12 Destroyers; 12 Escort Vessels; 12 Motor T.B.; 21 Sub marines; 1 Minelayer; 16 Minesweepers and various minor units.



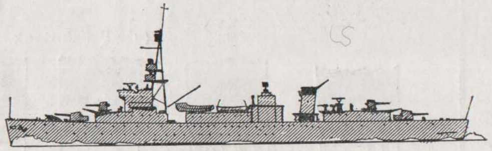
JASKÓLKA *class*



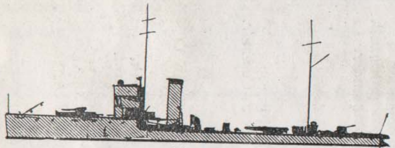
BLYSKAWICA. GROM.



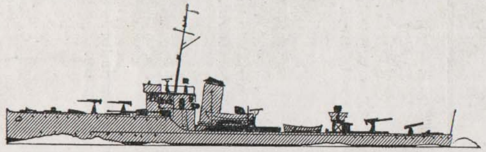
POMORZANIN.



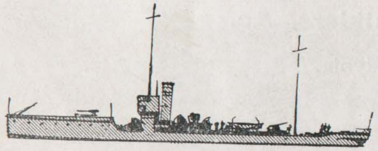
GRYF.



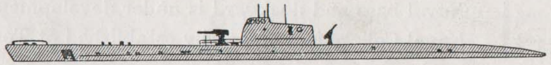
KRAKOWIAK
SLAZAK
PODHALANIN



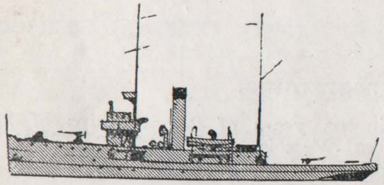
MAZUR



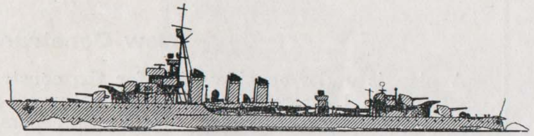
KUJAWIAK



WILK *class.*

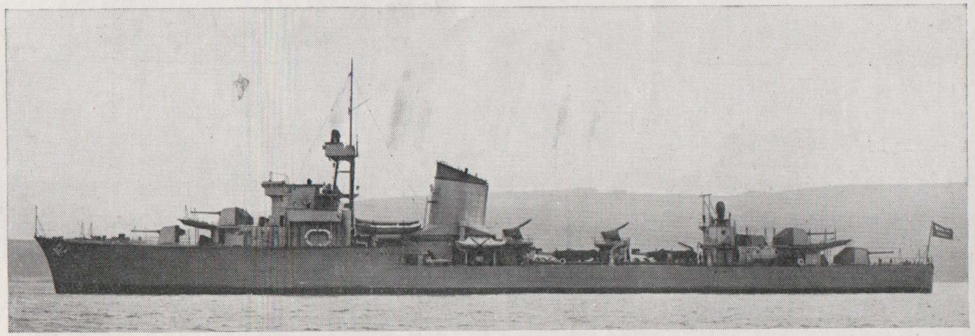


KOMENDANT PILSUDSKI
GENERAL HALLER

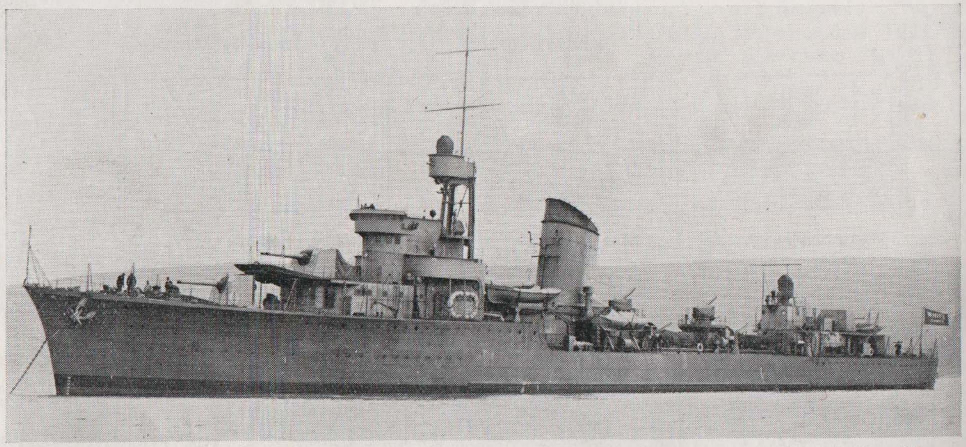


BURZA
WICHER

## 4 Destroyers (*Kontrtorpedowce*).



BLYSKAWICA. 1937, *Fighting Ships.*

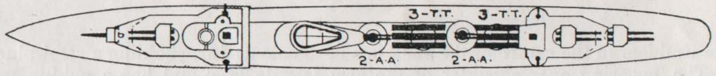


BLYSKAWICA. 1937, *Fighting Ships.*

**Blyskawica** (Oct. 1, 1936), **Grom** (July 20, 1936). *Standard* displacement : 2,011 tons. Complement : 180. Dimensions : 357 (*pp.*), 374 (*o.a.*) × 37 × 10¼ feet. Guns : **7**—4·7 inch, **4**—47 mm. AA., **4** M.G. Tubes : **6**—21 inch (tripled). **2** D.C.T. Fitted for minelaying. Machinery : Parsons geared turbines. 2 shafts. H.P. 54,000 = 39 kts. Boilers : 4 of 3-drum type, 300 lbs. pressure. Bows strengthened for ice navigation.

*Note.*—Names of these ships mean "Lightning" and "Thunderbolt," respectively. Both completed 1937. Trials exceeded designed speed.

39г Вошли в состав англ. флота.



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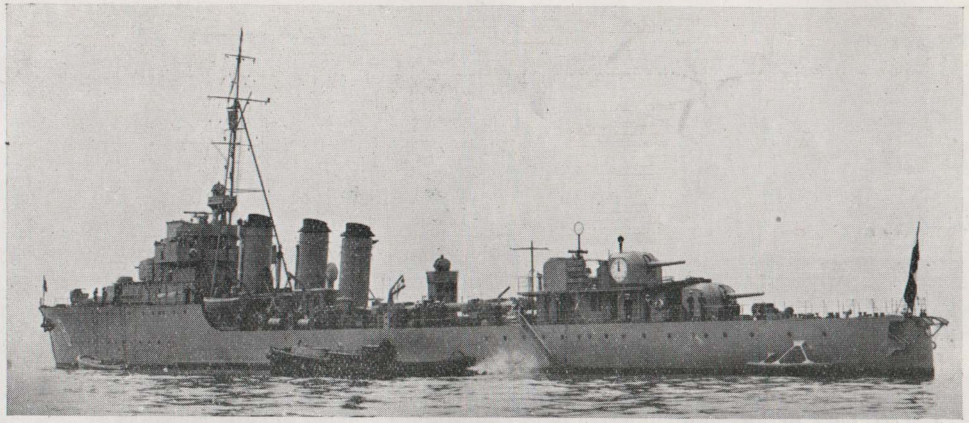
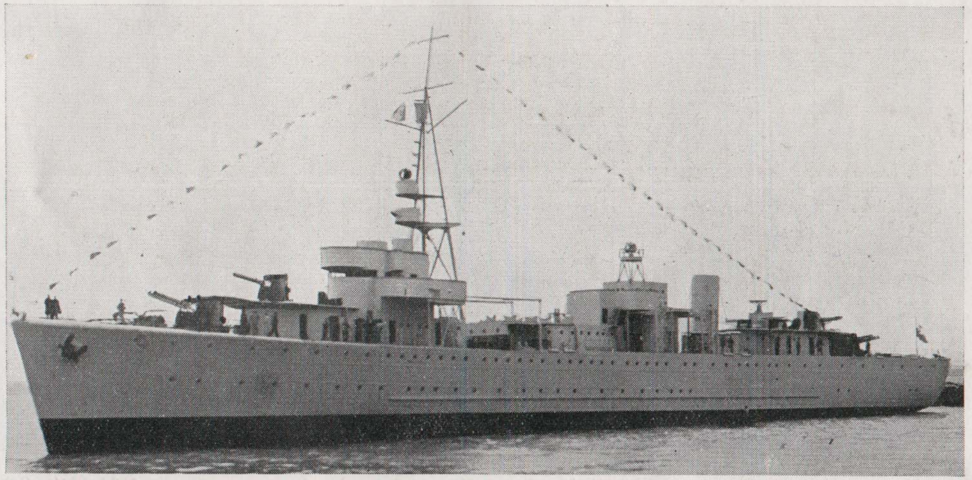


BURZA. 1937, *Fighting Ships.*

**Burza** (April 16th, 1929), **Wicher** (July 10th, 1928). Both laid down by Chantiers Navals Français, Blainville, Nov. 1st, 1926. and Feb. 19th, 1927, respectively. Displacement: 1540 tons. Dimensions: 344 (*w.l.*), 351 (*o.a.*) × 29 × $9\frac{3}{4}$ feet draught. Guns: **4**—5·1 inch, **2**—47 mm. AA., **4** M.G. Torpedo tubes: **6**—21 inch, in triple deck mountings. Machinery: Geared turbines (supplied by At. & Ch. de la Loire). H.P. 35,000 = 33 kts.

*Notes.*—Design of these vessels follows closely that of French *Simoun* class. Meanings of names are: *Burza*, Squall; *Wicher*, Hurricane. Completed 1930. Are to be distinguished by initial letters of names painted on bows.

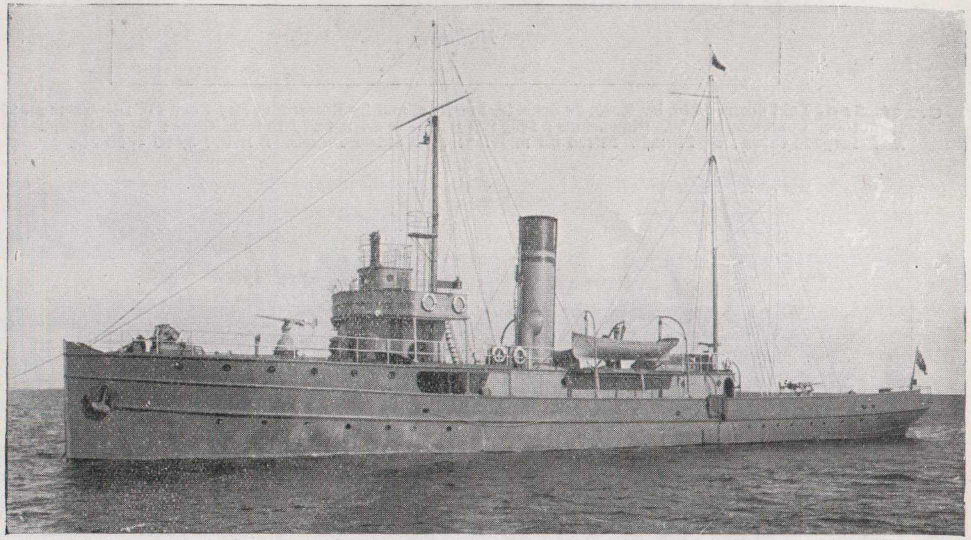
## Minelayer.



**GRYF** (Ch. & At. Augustin Normand, Le Havre, Nov. 29, 1936). Laid down 1934.

Displacement: 2,227 tons. Complement: 205.
Dimensions: $337\frac{3}{4}$ × $44\frac{1}{3}$ × 28 feet.
Guns:
**6**—4·7 inch.
**2**—3·5 inch AA.
**4**—40 mm. (twin mounts).
Stowage for 300 mines.
Machinery: 2 sets Sulzer Diesels. H.P.: 6,000 = 20 kts.

## Gunboats (*Kanonierki*).



1922 *Photo.*

**KOMENDANT PILSUDSKI**
**GENERAL HALLER** } (Crichton, Abö, Finland, 1918-19.) { Completed Jan., 1921. „ 1920.

Displacement: 342 tons. Complement, 60. Length, (*p.p.*) $154\frac{1}{4}$ feet, (*o.a.*) $164\frac{1}{2}$ feet. Beam, $22\frac{3}{4}$ feet. Designed load draught, 7 ft. 7 in. Guns: **2**—12 pdr., **2**—3 pdr.

Machinery: 2 sets triple expansion. 2 screws. Boilers: Normand. Designed I.H.P., 1000 = 15 kts. at 120 r.p.m. Coal capacity: 50 tons *normal* = 700 miles at full speed.

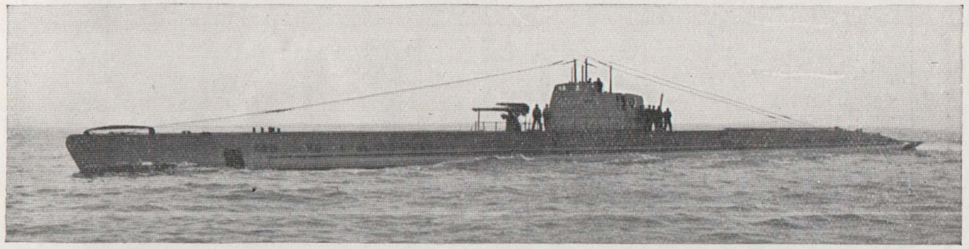
*Notes.*—Belong to a Class of four vessels originally ordered for the Russian Navy. The above two purchased from Finland; the remaining two added to Finnish Navy as *Karjala* and *Turunmaa* (*q.v.*).

bory da P34/2
l orzn. grupa

## 3+2 **Submarines** (*Minelayers*).

*Building*

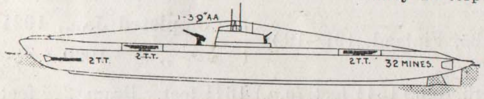
**Orzel, Sep.** Laid down, 1936, by K. M. de Schelde, Flushing, and by Rotterdam Dry Dock Co. Displacement: 1,110/1,473 tons. Complement: 56. Dimensions: 273½ (*pp.*), 275½ (*o.a.*) × 22 × 13 feet. Guns: **1**—3·5 inch, **2**—40 mm. AA. Torpedo tubes: **8**—21 inch. Fitted for minelaying. 2 Sulzer Diesels. B.H.P.: 5,000 = 20 kts.



WILK. 1930 *Photo, by courtesy of Messrs. Augustin Normand.*

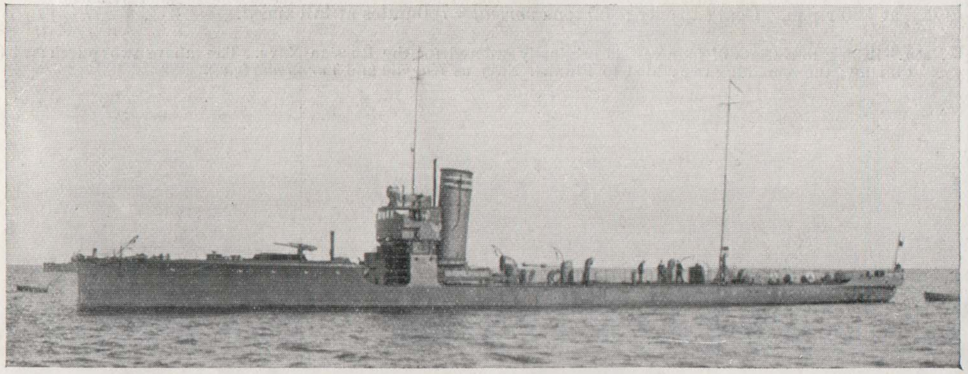
3 *Normand-Fenaux* type: **Rys** (At. & Ch. de la Loire, Nantes), April 22, 1929, **Zbik** (Ch. Navals Français, Blainville, 1929), **Wilk** (Ch. & At. Augustin Normand, Le Havre, April 12, 1929). Displacement: $\frac{980}{1250}$ tons. Dimensions: 246 × 16 × 13 feet. Guns: **1**—3·9 inch, **1**—1·5 inch AA. Torpedo tubes: **6**—20·8 inch. Mines carried: **38.** 2 sets Vickers-Normand Diesels, H.P. 1800 = 14 kts. on *surface*. Electric motors, B.H.P. 1200 = 9 kts. *submerged.* Radius of action: 3500 miles on *surface* at 10 kts., 100 miles *submerged.* Diving limit: 44 fathoms.

Carry **10** torpedoes and **38** mines.



*Notes.*—Meanings of names are as follows: *Rys*, Lynx; *Wilk*, Wolf; *Zbik*, Wild Cat. *Wilk* is prototype of the class, and all were built to Normand plans. Are distinguished by initials of names, painted on C.T.

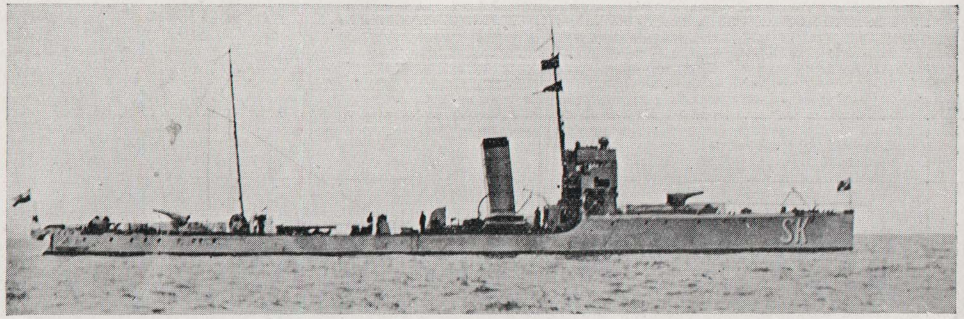
## 5 **Torpedo Boats** (*Torpedowce*). Transferred to Poland, Nov. 4th, 1920.



1922 *Photo.*

1 "*A III*" *type*: **Kujawiak** (ex-German *A 68*). Built by Schichau, Elbing, during 1917. Displacement: 335 tons *normal*, 355 tons *full* load. Dimensions: 197 (*o.a.*) × 21 × 7½ feet. Guns: 2—3 inch, 2 M.G. Tubes: 1—17·7 inch. H.P. 5800 = 27·1 kts. *on trials.* Fuel: 76 tons (*on trials*) 82 tons *max.* capacity = 725 miles at 20 kts. Complement, 69.

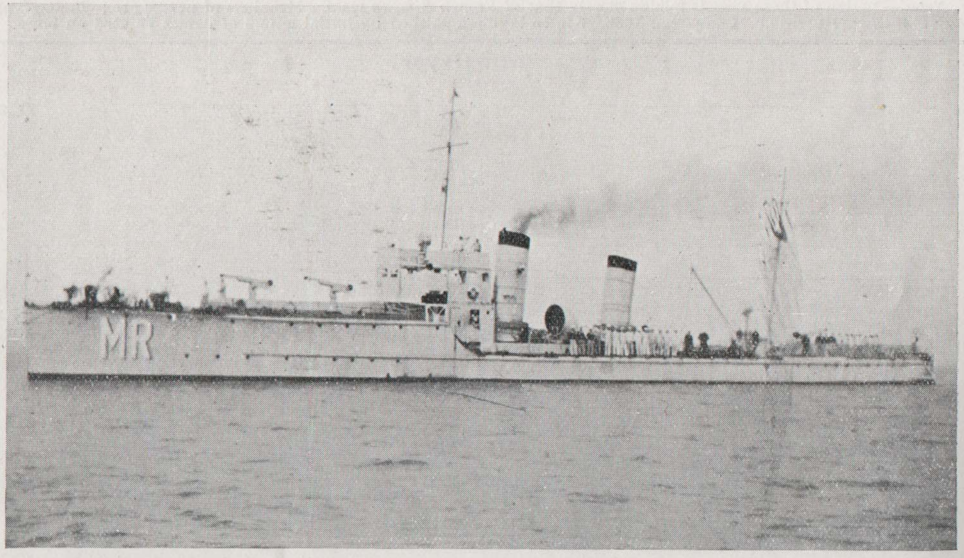
*Notes.*—*A 68* re-fitted by H.M. Dockyard, Rosyth, 1921. *A 69* was in so bad a state as to be not worth re-fitting; ex-German *V 105* (ceded to Brazil but not required by that country) was taken over in place of *A 69.*



SLAZAK. (Tender to Torpedo School.) 1932 *Photo, Official*

3 "*A III*" *type*: **Krakowiak** (ex-German *A 64*), **Podhalanin** (ex-*A 80*), **Slazak** (ex-German *A 59*). Built by Vulkan, Stettin, 1916–17. Displacement: 365 tons *normal*, 380 tons *full* load. Dimensions: 197 (*o.a.*) × 21 × 6 feet. Guns: 2—3 inch, 2 M.G. Tubes: 1—17·7 inch. H.P. *about* 6,050 = 28·38 kts. *on trials.* Fuel: 85 tons (*on trials*), 61·67 tons *max.* capacity. Complement, 69.

*Note.*—*A 64* re-fitted 1921, by H.M. Dockyard, Rosyth.



MAZUR. (Appearance now as silhouette.) 1932 *Photo, Official.*

1 *ex-German* boat: **Mazur** (ex-German *V* 105). Built by Vulkan, Hamburg, 1914-15. Displacement: 349 tons *normal*, 421 tons *full* load. Dimensions: 205½ × 20½ × 7½ feet. Guns: 4—3 inch, 2 M.G. Tubes: 2—17·7 inch. H.P. 6,000 = 30 kts., *on trials* 5,500 = 28 kts. Fuel: 59·7 tons coal + 16·2 tons oil = 640 miles at 20 kts. Complement, 74.

*Notes.*—Original four boats of this class begun for Netherlands Navy as *Z* 1—*Z* 4; taken over by Germany August, 1914, re-numbered *V* 105—108. *V* 107 War Loss. *V* 106 of this class assigned to Brazil, but sold to England. *Kaszub* (ex-*V* 108) sunk by explosion in July, 1925, and subsequently discarded as not worth repair. *Mazur* is Gunnery School Tender

Identification letters of Torpedo Boats (painted on bows):
KR — *Krakowiak*
KW — *Kujawiak*
MR — *Mazur*
PH — *Podhalanin*
SK — *Slazak*

## Surveying Vessel.

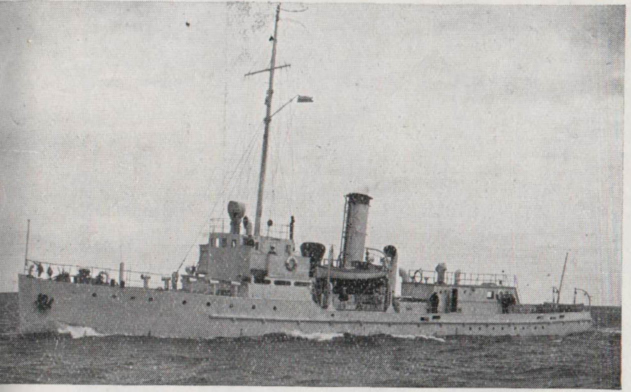


Photo 1933, *Official.*

**OMORZANIN** (ex *Mewa*). Built 1917. *Normal* Displacement: 170 tons (203 tons *full load*). Dimensions: (*p.p.*) $131\frac{1}{4}$, (*w.l.*) $132\frac{1}{2}$, (*o.a.*) $140\frac{3}{4} \times 19\frac{2}{3} \times 4$ feet *normal* draught, 5 feet "medium load" draught. Guns: **1**—3 pdr., **2** M.G. Machinery: 2 sets triple expansion I.H.P. 700 = 13 kts. speed. Coal: 20 tons *normal*; 34·6 tons *full load*. Oil: 4 tons. Complement, 44.

*tes.*—Ex-German "F. M. Boot," *i.e.* flat-bottomed Mine "searcher." Purchased by Poland, 1921, and converted into a surveying vessel in 1932.

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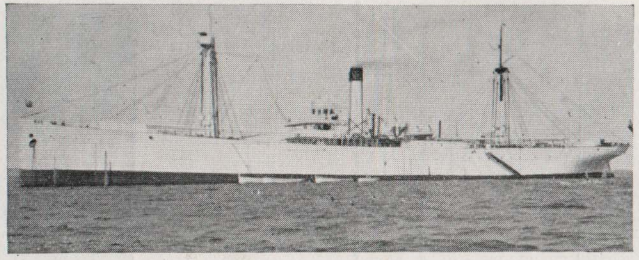
## Submarine Depot Ship.

*Photo wanted.*

**LAWOMIR CZERWINSKI** (ex-*Lodz*, ex-*Kovno*). (Earles, Hull, 1907). Purchased 1932. 2,450 tons *gross*. Dimensions: 318 × 41 × 19 feet. H.P.: 1,800 = 12 kts. Coal: 167 tons.

## Transport (*Transportowiec*).



WILJA. 1932 *Photo, Official.*

**WILJA** (ex-*Laurent Schiaffino*, ex-*Le Bourget*, ex-*Tinos*, ex-*Hilda Horn*, ex-*Ganelon*). (Flensburg, 1906). Displacement: 8,400 tons, (3,570 tons *gross*.) Dimensions: $341 \times 48\frac{3}{4} \times 19\frac{1}{2}$ feet. I.H.P.: 1,350 = 10 kts. Complement: 53. Coal: 600 tons.

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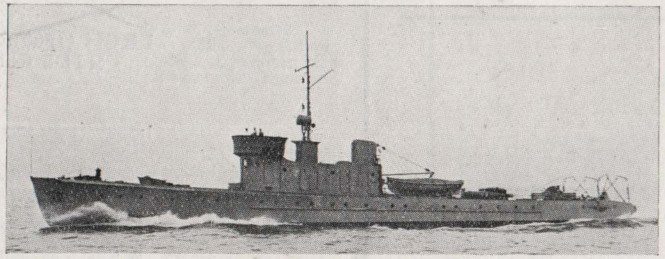
## Minesweepers.

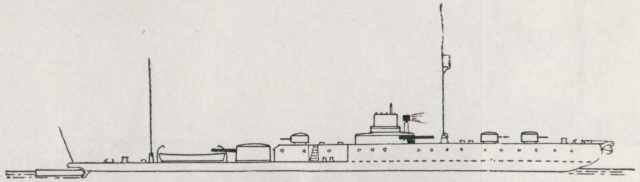


JASKÓLKA. (Before mounting gun). 1935, *Official.*

**JASKÓLKA** (Sept. 13, 1934), **MEWA** (1935), **CZAJKA** (April 10, 1935), **RYBITWA** (April 26, 1935). Displacement: 183 tons. Dimensions: $139\frac{1}{2} \times 21\frac{1}{3} \times 5\frac{1}{2}$ feet. Guns: **1**—3 inch. Diesel engines. B.H.P.: 1,040 = 15 kts.

*Notes.*—First pair built at Gdynia, second pair at Modlin. Respective meanings of names are: Swallow, Seagull, Plover, Tern.

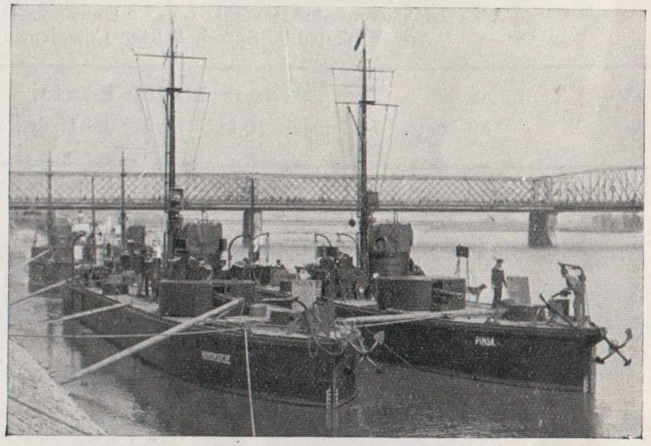
## River Monitors (*Monitory*).



**NIEDOSCIAGNONA** (1934), **NIEZWYCIEZONA** (1934), **WILNO** (1925), **KRAKOW** (1925). All built by Zieleniewski, Krakow. Displacement: 70 tons. Dimensions: $115 \times 20 \times 1\frac{1}{4}$ feet *normal* draught. Guns: **1**—4·1 inch, **3**—3 inch, **3** M.G. Armour: Not reported. Machinery: 2 sets Diesel engines. H.P.: 140 = 9 kts. Complement: 35.

Днеп

*Note.*—4·1 inch is reported to be a howitzer.

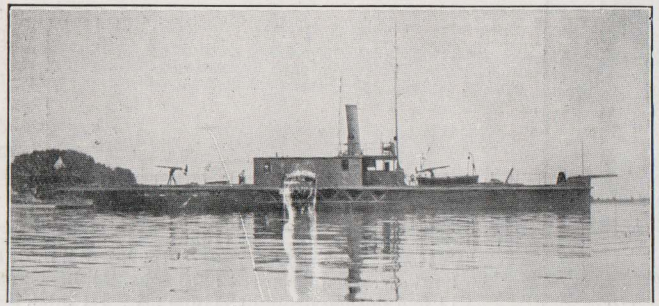


HORODYSZCZE and PINSK. *Official Photo*, 1922.

Днеп

**WARSZAWA** (1920), **HORODYSZCZE** (1920), **TORUŃ** (1920), **PINSK** (1920). "Armoured Monitors" built by Gdansk Shipyard, 1920, for service on the Vistula. Displacement: 110 tons *normal*, 135 *deep load*. Dimensions: $113\frac{1}{4}$ (*o.a.*) $\times 16\frac{1}{2} \times 2\frac{1}{3}$ feet *normal* draught, $2\frac{2}{3}$ feet *deep load*. Guns: **2**—4·1 inch, **5** M.G. Armour: $\frac{1}{3}''$ side amidships, $\frac{1}{2}''$ turrets, —″ C.T. Machinery: 3 sets 60 B.H.P. Daimler motors totalling 180 B.H.P. = 9·1 kts. Petroleum fuel. 5 tons *normal*, 10 tons *max.* capacity = 1500 miles at 8 kts. Complement, 34.

## Armed River Steamers.



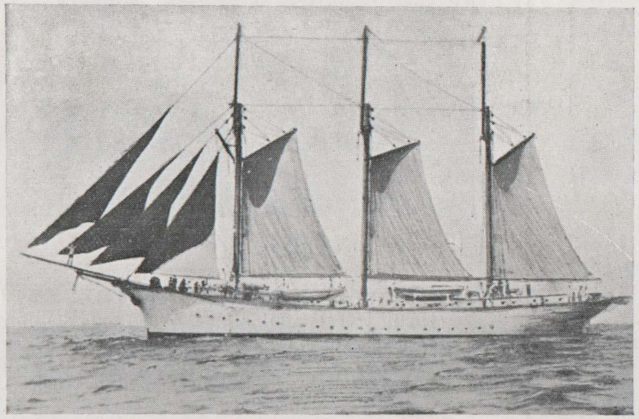
HETMAN CHODKIEWICZ. 1924 *Official Photo.*

**ADMIRAL SIERPINEK, GENERAL SOSNKOWSKI, GENERAL SIKORSKI, HETMAN CHODKIEWICZ, ADMIRAL DICKMAN, GENERAL SZEPTYCKI.** Displacement: 100-200 tons. Guns: 2—3 inch, 4 M.G. "Armour plated." Speed, 8 kts. Complement, 38.

## River Motor Boats.

30 boats. 7-13 tons. 10 kts. Guns: 1—1 pdr., 2 M.G.

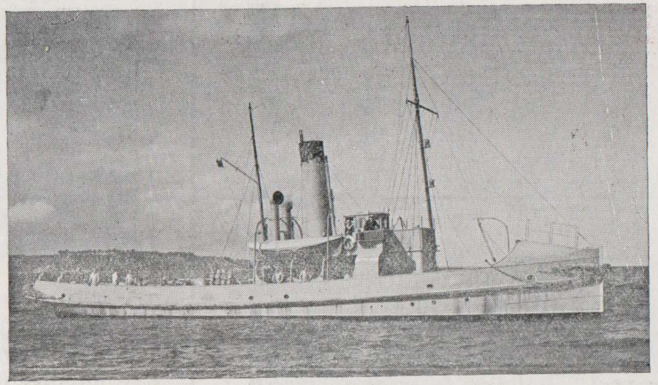
## Training Ship.



ISKRA. 1932 *Photo, Official.*

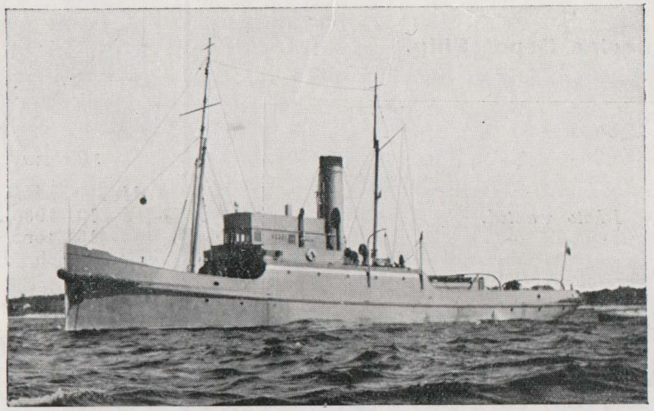
**ISKRA** (1917). Auxiliary 3-masted Schooner, purchased in Netherlands, 1927. Displacement: 560 tons. Dimensions: 127¾ × 25 × 9¾ feet. H.P. 130 = 7·5 kts. Sea-going Tender to Naval College. Complement (including cadets), 58.

## Tugs.



LECH. *Photo* 1933, *Official.*

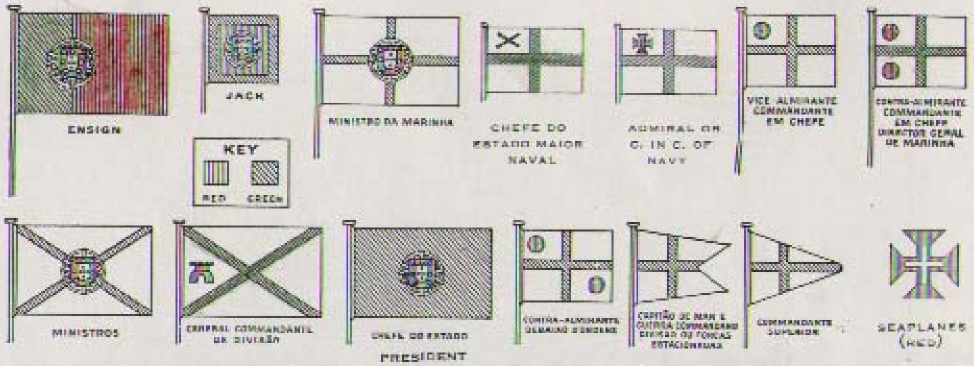
**LECH** (1903). Displacement: 280 tons. Dimensions: 96 × 20·8 × 11·3 feet. Designed—I.H.P. 560. Speed: 12 kts.



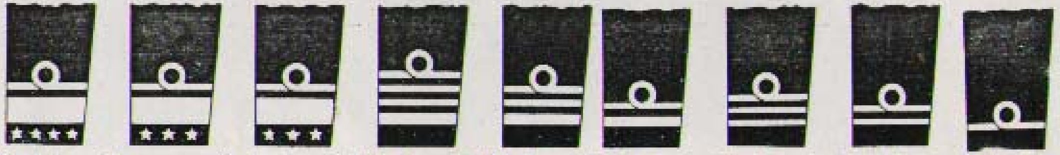
1934 *Photo, Official.*

**SMOK** (1921). Displacement: 655 tons. Dimensions: 128 × 27·5 × 10·9 feet. Designed—I.H.P. 1,000. Speed: 12·5 kts.

# PORTUGAL.


ENSIGN
JACK
KEY
RED
GREEN
MINISTRO DA MARINHA
CHEFE DO ESTADO MAIOR NAVAL
ADMIRAL OR C. IN C. OF NAVY
VICE ALMIRANTE COMMANDANTE EM CHEFE
CONTRA-ALMIRANTE COMMANDANTE EM CHEFE DIRECTOR GERAL DE MARINHA
MINISTROS
CORPRAL COMMANDANTE DE DIVISÃO
CHEFE DO ESTADO
PRESIDENT
CONTRA-ALMIRANTE DEBAIXO D'ORDENS
CAPITÃO DE MAR E GUERRA COMMANDANDO DIVISÃO DE FORÇAS ESTACIONADAS
COMMANDANTE SUPERIOR
SEAPLANES (RED)

## Naval Uniforms.



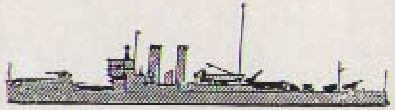
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Almirante.* | Vice-almirante.† | Contra-almirante.‡ | Capitão de mar e guerra. | Capitão de fragata | Capitão-tenente. | Primeiro tenente. | Segundo Tenente. | Guarda marinha. |
| *Admiral.* | *Vice-Admiral.* | *Rear-Admiral.* | *Captain.* | *Commander. (Senior.)* | *Commander. (Junior.)* | *Lieut.-Commander and Lieut.* | *Lieut. & Sub-Lieut.* | *Act. Sub.-Lt. & Midshipman* |

British rank.

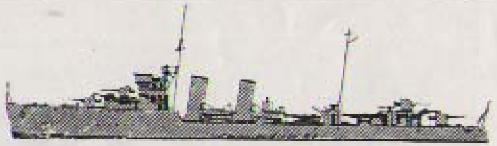
* Admiral has four *gold* stars. † Vice-Admiral has three *gold* stars. ‡ Rear-Admiral has three *silver* stars.

Staff officers same but *without* executive curl. Colour between stripes—*Surgeons*: red; *Engineers*: violet; *Paymasters*: blue; *Constructors*: black. On visor of cap, *Admirals*: 2 oak leaves; *Captains*: 1 oak leaf; *Commanders*. 1 narrow stripe. Uniforms like British Navy. Chin strap of gold cord, but officers of lieutenant's rank and below have black chin straps.

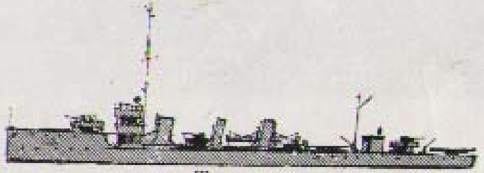
*Minister of Marine:* Commander Manoel Ortius de Bettencourt.
*Personnel:* 689 officers and 5,670 men. *Colour of Ships:* Dark grey.
*Mercantile Marine:* (From "Lloyd's Register," 1937 figures.) 252 vessels, *gross* tonnage 258,172.
*Mode of address:* N.R.P. "——". (Navio da Republica Portuguesa). *Displacements;* Standard.



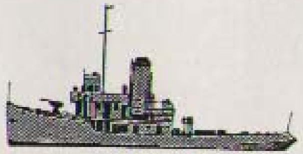
AVE *class.*



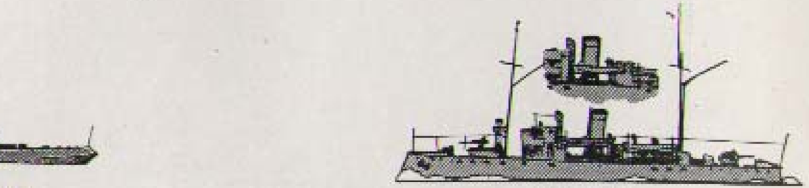
VOUGA *class.*



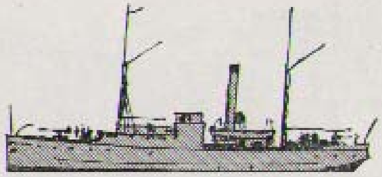
TAMEGA.



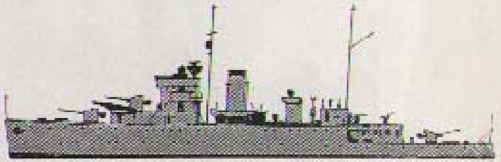
FARO. LAGOS.



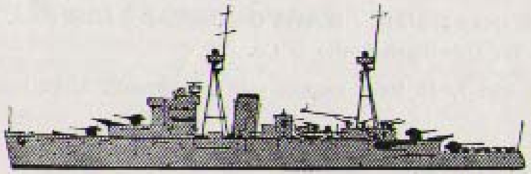
DIU *class.*
(*Inset:* BEIRA. IBO).



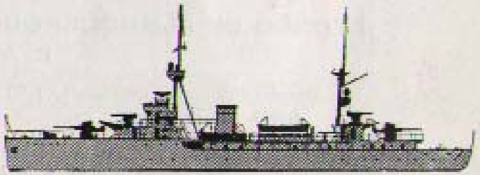
LIMPOPO.



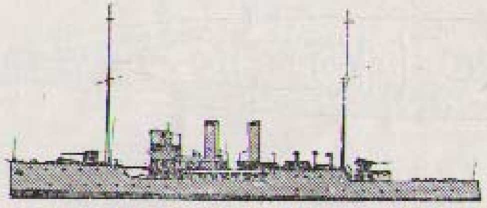
GONÇALVES ZARCO. GONÇALO VELHO.



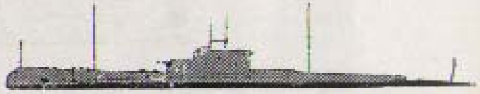
AFONSO DE ALBUQUERQUE.
BARTOLOMEU DIAS.



PEDRO NUNES.
JOÃO DE LISBOA.

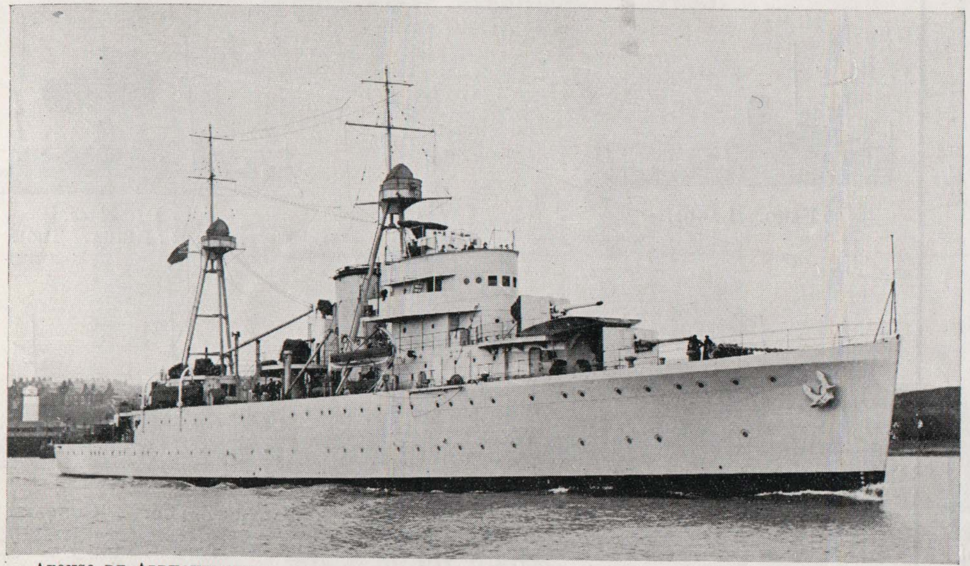


REPUBLICA. C. ARAUJO.

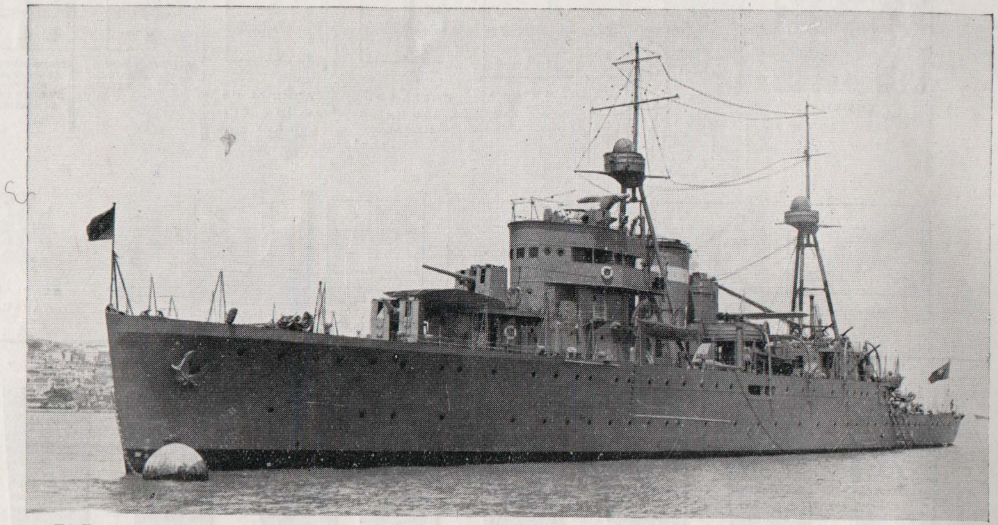


DELFIM. ESPADARTE. GOLFINHO.

## **1st class.** (*Avisos de 1a Classe.*)



AFONSO DE ALBUQUERQUE. 1935 *Courtesy of the builders.*



B. DIAS. 1936, *courtesy Eng. Lieut.-Com. Aluino Martins da Silva.*

### **AFONSO DE ALBUQUERQUE** (May 28, '34). **BARTOLOMEU DIAS** (Oct. 10, '34).

R. & W. Hawthorn Leslie & Co.

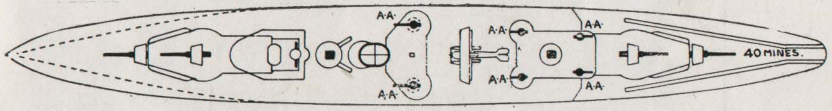
Displacement: (*standard*), 1,811 and 1,816 tons, respectively; (*normal*), 2,100 tons; (*full load*), 2,435 tons.

Complement: 191.

Dimensions: $326\frac{3}{4} \times 44\frac{1}{4} \times 12\frac{1}{2}$ feet (*mean*).

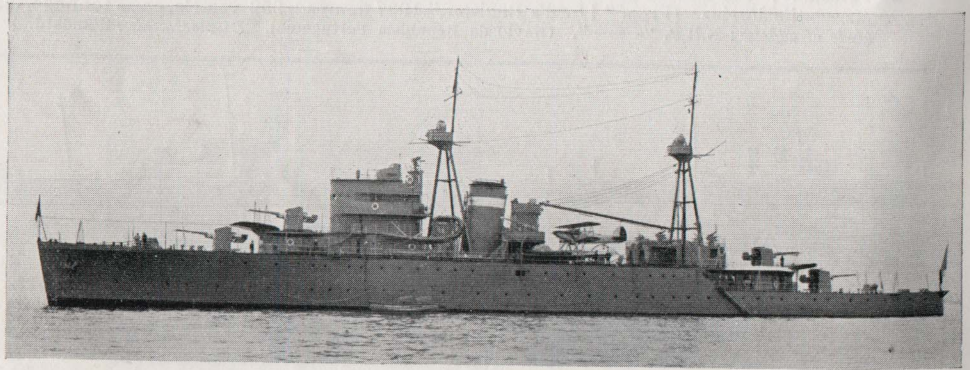
4—4·7 inch, 50 cal.
2—3 inch AA.
4—40 mm. AA.
Fitted to carry 40 mines.

Aircraft: 1.



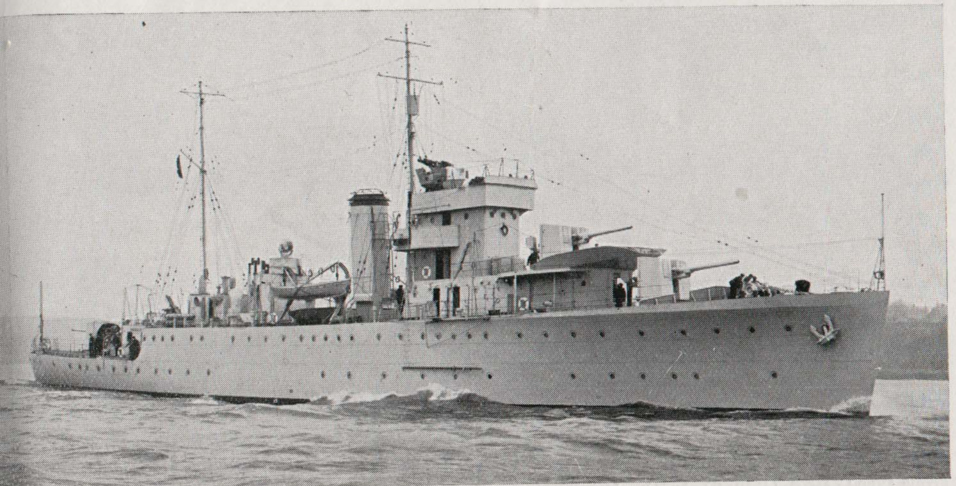
Machinery: Parsons geared turbines. S.H.P.: 8,000 = 21 kts. Oil fuel: 600 tons. Radius: 8,000 miles at 10 kts. 4 Yarrow boilers.

*Notes.*—Original contract placed with Odero-Terni-Orlando, 1931, cancelled 1932, and design modified by new builders when fresh contract was made. Both ships made 22 kts. on trials without being pressed. They are differentiated by the white band around funnel of *B. Dias.*



B. DIAS. 1937, *Fighting Ships.*

## 2nd Class (*Avisos de 2a Classe*).



Gonçalo Velho (*Zarco* distinguished by white band on funnel). 1933 *Photo, Courtesy of builders.*

**ONÇALVES ZARCO** (Nov. 28, 1932), **GONÇALO VELHO** (Aug. 3, 1932).

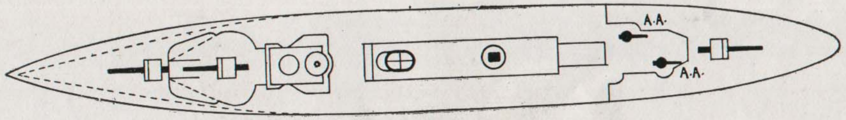
R. & W. Hawthorn Leslie & Co.

Displacement : (*Standard*), 966 tons ; (*normal*), 1,155 tons ; (*full load*), 1,413 tons.

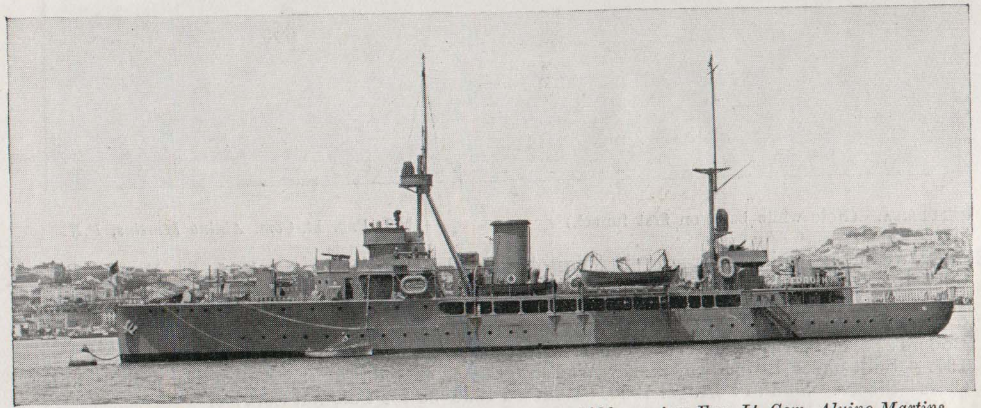
Complement : 119.

Dimensions : 250 (*p.p.*), 268 (*o.a.*) × 35½ × 11¼ feet (*mean*).

Guns :
3—4·7 inch, 50 cal.
2—40 mm. AA.
2—D.C.T.



Machinery : Parsons geared turbines. S.H.P. : 2,000 = 16·5 kts. 2 screws. Boilers : 2 Yarrow. Radius : 9,831 miles at 11 kts. Oil : 335 tons. Trials : 4 hours full speed = 17·4 kts.



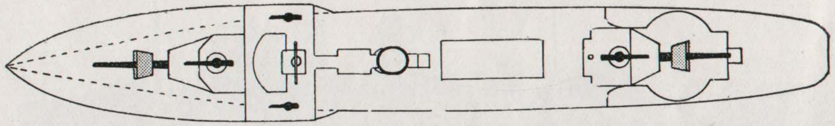
Pedro Nunes. 1936, *courtesy Eng. Lt.-Com. Aluino Martins.*

**PEDRO NUNES** (1933), **JOÃO DE LISBOA** (ex-*Infante D. Henrique*). (May 21, 1936).

Displacement : (*Standard*), 1,107 tons ; (*full load*), 1,217 tons.
Dimensions : *J. de Lisboa*, 234⅓ (*p.p.*), *P. Nunes*, 223 (*p.p.*) × 32¾ × 9⅓ feet (*mean*), 10½ feet (*max.*)

Guns :
2—4·7 inch, 50 cal.
4—40 mm. AA.
2—D.C.T.

*Note to Plan.*—Secondary armament is actually as stated, 4—40 mm. AA.

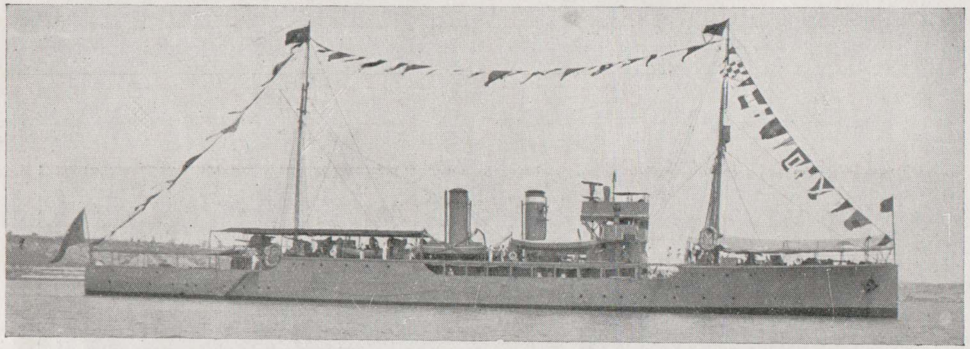


Machinery : 2 sets M.A.N. 8-cyc. Diesels by Swiss Locomotive and Machine Works, Winterthur. B.H.P. : 2,400 = 16·5 kts. Radius : 8,000 miles at 10·5 kts. Oil : 110 tons.

*Notes.*—Both built at the Naval Arsenal, Lisbon. *P. Nunes* laid down early in 1930. Unlike her sister ship, she is not part of ten year programme introduced that year.

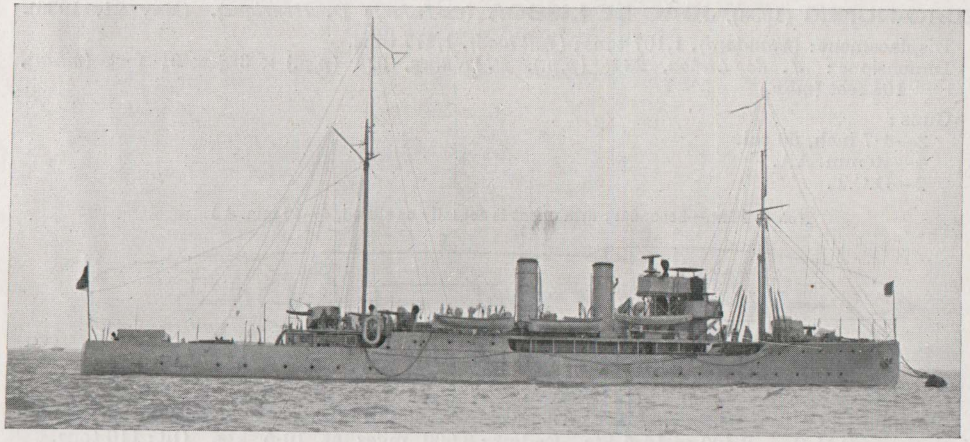
# PORTUGAL—Escort Vessels and Destroyers

## Escort Vessels 2nd class—*continued.*



REPUBLICA. (Note white band on first funnel.) 1933, *Eng. Lt.-Com. Aluino Martins, P.N.*

**REPUBLICA** (ex-British Fleet-sweeping Vessel, *Gladiolus*, launched Oct., 1915, by Messrs. Chas. Connell & Co., Scotstoun.) 963 tons. Dimensions: $255\frac{1}{4}$ (*p.p.*), $267\frac{3}{4}$ (*o.a.*) × $33\frac{1}{2}$ × 11 (*mean*), $11\frac{3}{4}$ feet (*max.* draught). Guns: **2**—4 inch (Vickers), **2**—3 inch AA. (Armstrong), **4** 3 pdr. (Hotchkiss), 2 M.G. I.H.P. 2362 = 16·4 kts. Machinery: 1 set 3-cyl. triple exp. Boilers: 2 cylindrical. 1 screw. Coal: 375 tons; = about 5000 miles at 15 kts. Complement 137. Built under British Emergency War Programme as a unit of the *Azalea* group of "Flower Class" Sloops. Sold to Portugal 1920. Refitted 1928–30 for Colonial Service.

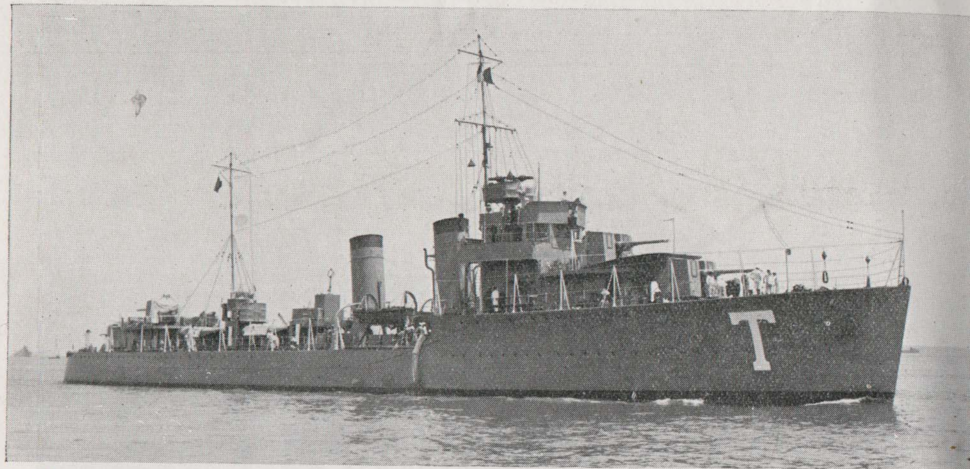


1933, *Eng. Lt.-Com. Aluino Martins, P.N.*

**CARVALHO ARAUJO** (ex-British Fleet-sweeping Vessel, *Jonquil*, launched May, 1915, by Messrs. Chas. Connell & Co., Scotstoun.) 916 tons. Dimensions: 250 (*p.p.*), $262\frac{1}{2}$ (*o.a.*) × 33 × 11 (*mean*), $11\frac{3}{4}$ feet (*max.* draught). Guns: as *Republica* above and also 2 Thornycroft type depth charge throwers. I.H.P. 2242 = 17·25 kts. Speed machinery, boilers, &c., as *Republica*. Built under British Emergency War Programme as a unit of the *Acacia* group of "Flower Class" Sloops. Sold to Portugal, 1920. Refitted 1928–30 for Colonial Service. In 1937 adapted for use as a Surveying Vessel.

*Note.*—This ship is named after a Portuguese naval officer killed in action with a German submarine during the Great War.

## 6 Destroyers (*Contra-Torpedeiros*).



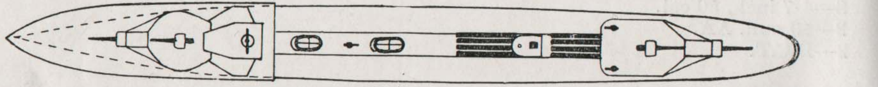
TEJO. 1936, *Courtesy Eng. Lieut.-Com. Aluino Martins da Silva.*

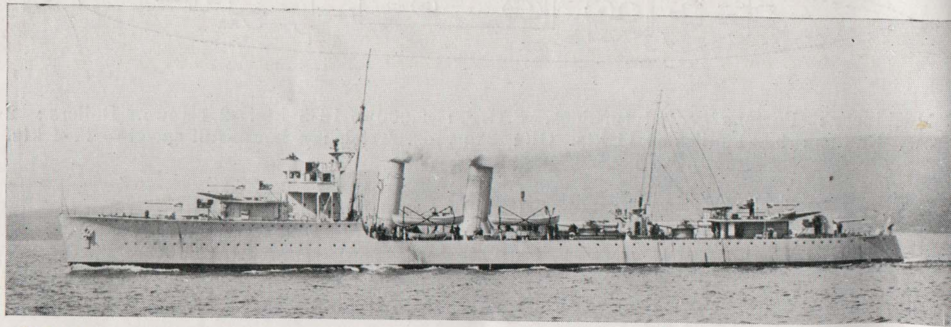
5 *Yarrow* type: **Dão** (July 27, 1934), **Vouga** (Jan. 25, 1933), **Lima** (May 29, 1933), **Tejo** (May 4, 1935 **Douro** (Aug. 16, 1935). Displacement: 1,239 tons *standard*, 1,383 tons *normal*, 1,620 tons *full load*. Complement 162 *normal*, 186 *full*. Dimensions: 319 (*p.p.*), 322 (*o.a.*) × 31 × 11 feet (*mean draught*). Guns: **4**—4·7 inch, 5 cal., **3**—40 mm. AA., **2** D.C.T. Torpedo tubes: **8**—21 inch, quadrupled. Mine rails fitted and 20 mines carrie

Machinery: Parsons geared turbines. S.H.P. 33,000 = 36 kts. 3 Yarrow boilers (400 lbs. pressure). Oil: 296 ton Radius: 5,400 miles at 15 kts. Trials gave speeds of from 36·65 to 37 kts. with ample margin of power and boil capacity.

*Note.*—Two earlier ships of this class, originally named *Douro* and *Tejo*, were sold to Colombia, fresh ships with the names being built to replace them. All built at Lisbon except *Vouga* and *Lima*, constructed on the Clyde.

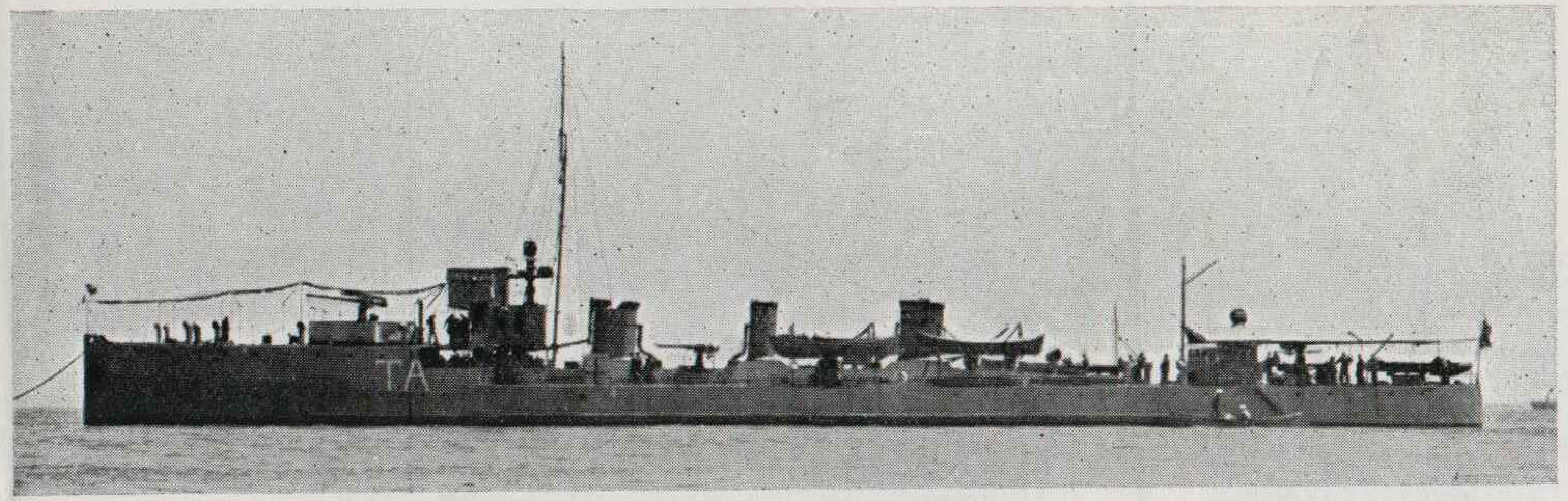
Distinguishing letters on bows:
D—*Dão*
D R—*Douro*
L—*Lima*
T—*Tejo*
V—*Vouga*





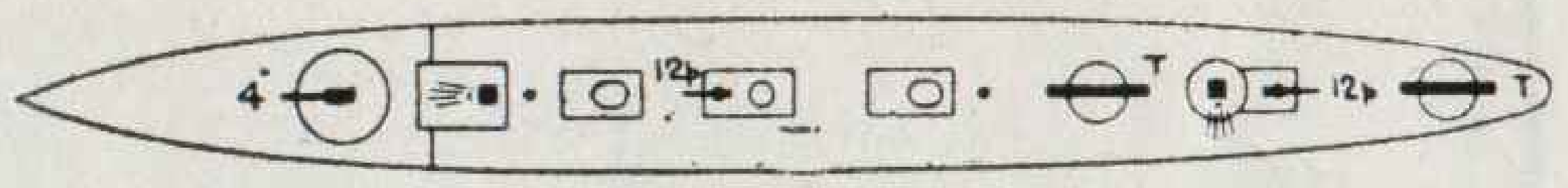
VOUGA 1933, *courtesy Messrs. Yarrow.*

## Destroyers (*continued*).



TAMEGA. 1933, *Eng. Lt.-Com. Aluino Martins, P.N.*

1 *Yarrow* type: **Tamega** (Jan. 1922) by Lisbon D.Y. 524 tons (778 tons *full load*). Dimensions: 240 × 23½ × 7⅔ feet, *max.* draught. Armament: **1**—4 inch, **2**—3 inch. **4**—18 inch Torpedo tubes (paired) Parsons turbines: 11,000 = 27 kts. 3 Yarrow boilers. Coal: 146 tons = 800 miles at 15 kts. Complement, 80.



(Note.—Now has twin TT mountings.)

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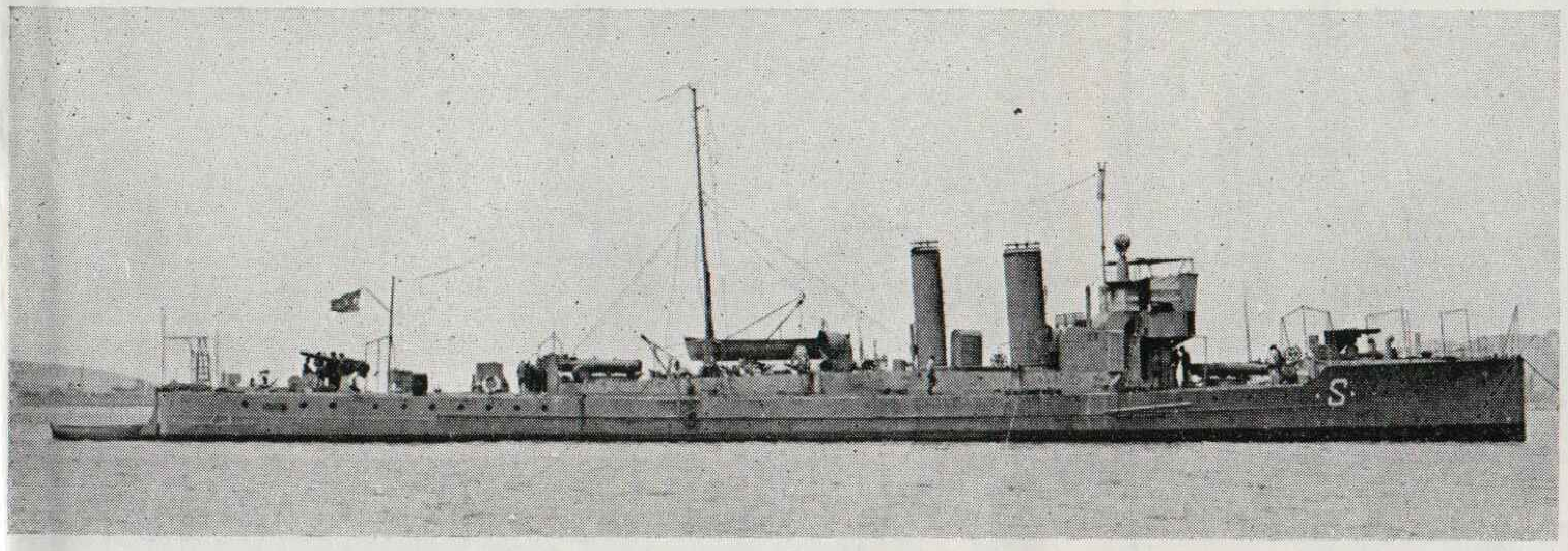
## 2 Torpedo Boats (*Torpedeiros*).



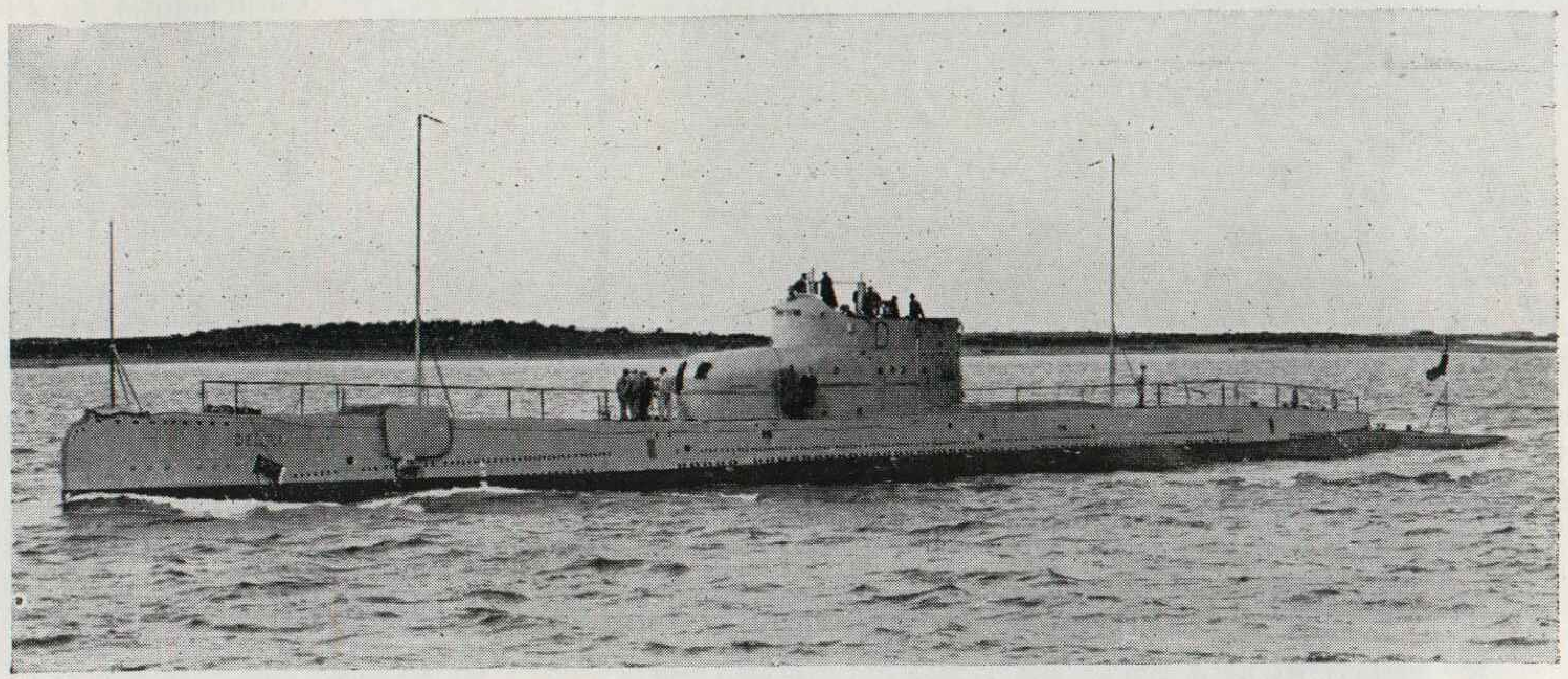
SADO. (Has higher bridge than *Ave.*) 1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

2 Ex-Austrian boats: **Ave, Sado,** (Ganz-Danubius Co., Porto Ré, Fiume, 1913-15). Displacement: 195 tons. Dimensions: 188·3 × 19 × 8 feet *max.* draught. Guns: 1—66 mm. Skoda, 1—57 mm. Hotchkiss. Tubes: 4—18 inch paired. Designed S.H.P. 5,000 = 28 kts. (made 31 kts. when new). Turbine engines and 2 Yarrow boilers. Fuel: 20 tons coal + 34 tons oil. Complement: 45.

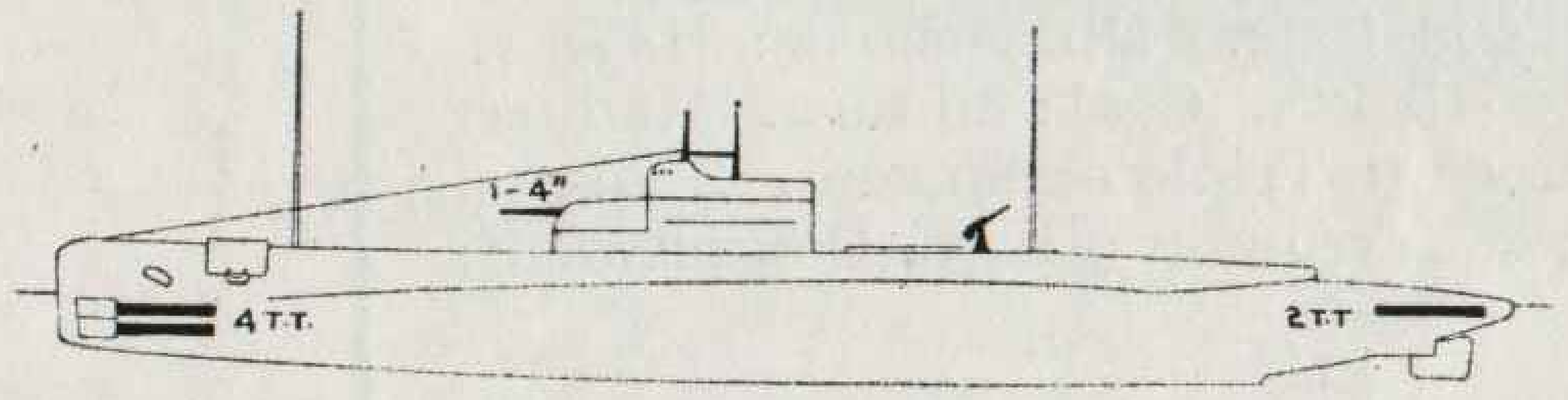
These boats form a Training Flotilla for Stokers' and Torpedo courses. Were originally numbered *F* 86, *F* 89.

Distinguished by initials painted on bows.

## 3 Submarines (*Submersiveis*).



DELFIM. 1934 *Photo, Messrs Vickers Armstrongs.*

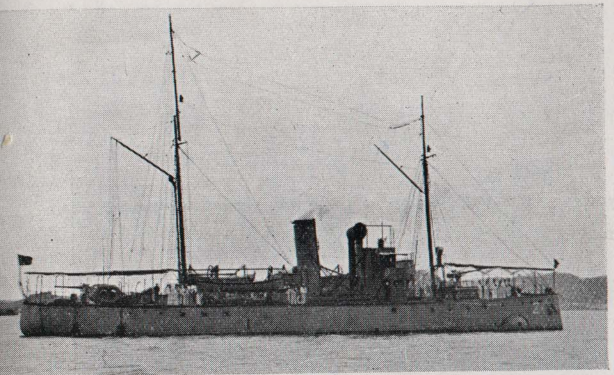


3 *Vickers-Armstrongs* type: **Delfim** (May 1, 1934), **Espadarte, Golfinho** (both May 30, 1934).

813/1,105 tons. Dimensions: 227·2 × 21·3 × 12·7 feet.
Armament: 1—4 inch, 2 M.G. Tubes: **6**—21 inch (**4** bow, **2** stern). **12** torpedoes carried.
Machinery: Vickers Diesels, B.H.P. 3,300 = 16·5 kts. Motors H.P. 1,000 = 9·25 kts. Radius: 2,080 miles full speed, 5,000 miles at 10 kts.; *submerged* = 8 miles at full speed and 110 miles at 4 kts.
Complement, 38.

*Notes.*—All three laid down at Barrow, 9th March, 1933, and completed 1935. Distinguished by initial letters of names painted on C.T.

## Gunboats (*Canhoneiras*).



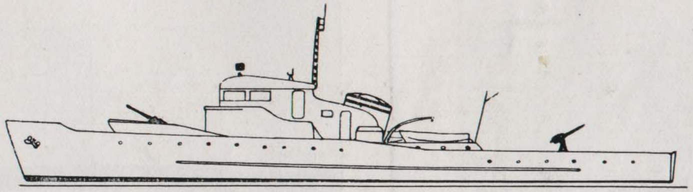
ZAIRE. 1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

**U** (Oct., 1929), **ZAIRE** (ex-*Goa*, Feb. 26, 1925), **IBO** (1911). All built at Lisbon D.Y. 403 tons. Dimensions: 147⅔ × 27¼ × 7 feet. H.P.: 700 = 13 kts. Coal: 85 tons. Radius: 3,200 miles at 9 kts. Machinery: Triple expansion. 2 shafts. Boilers: Cylindrical in *Ibo*, 2 Yarrow in others. Complement: 68.

| | *Identification letters* | *Guns* |
|---|---|---|
| *u* | none | 2 Armstrong 3 inch/40—2 Hot. 47 mm/40—1 M.G. |
| *o* | I | 2 (American) 3 inch/50—2 Hot. |
| *ire* | Z | 2 Armstrong 3 inch/40—2 Hot. |

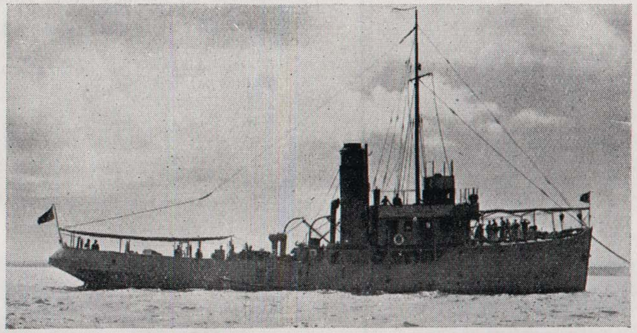
## Fishery Protection Vessels.

*Canhoneiras da Fiscalização da Pesca*



NEW CONSTRUCTION.

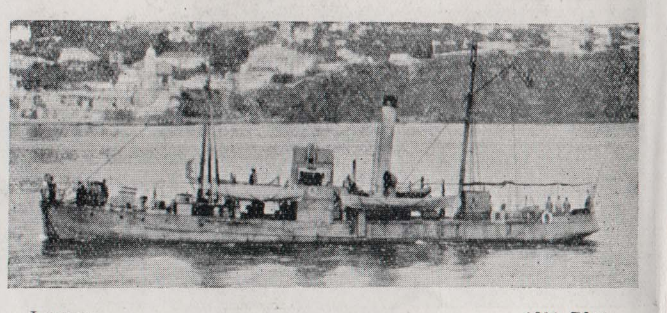
2 vessels, building at Lisbon. Displacement: 250 tons (*full load*). Complement: 25. Dimensions: 134½ (*p.p.*), 139¾ (*o.a.*) × 21⅓ × 7 feet (*max.*). Guns: **4**—25 mm. AA. in twin mounts: Machinery: Diesel. 2 shafts. B.H.P.: 2,600 = 18 kts. Fuel: 25 tons. Radius of action: 2,500 miles at cruising speed, 850 miles at full speed.



LAGOS. 1933 *Photo, Mr. Henrique Seixas.*
(Now has white band round funnel to distinguish from FARO).

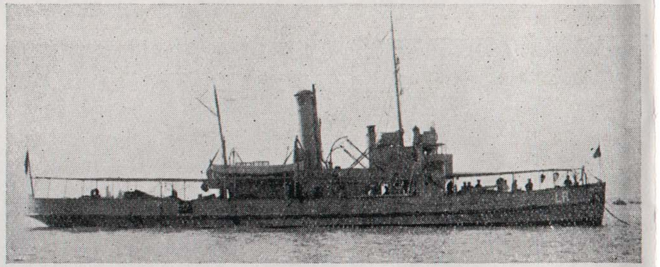
**FARO, LAGOS** (1927). Built at Lisbon D.Y. Displacement: 300 tons. Dimensions: 120 (*p.p.*), 130½ (*o.a.*) × 22 × 10½ feet. Guns: **2**—47 mm. H.P.: 650 = 13 kts. 1 Yarrow boiler. 1 screw. Radius: 2,000 miles at 7·5 kts. Oil: 42 tons. Complement: 52.

## Fishery Protection Vessels—(*continued*).



LIMPOPO. 1932 *Photo.*

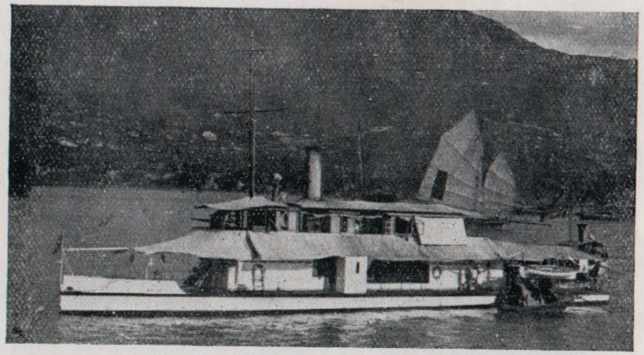
**LIMPOPO** (Blackwall, 1890). 199 tons. Dimensions: 124 × 21 × 6½ feet. Guns: **3**—6 pdr., **1** machine. H.P.: 523 = 11·3 kts. Complement: 57. (Built of iron).



LIDADOR. 1933, *Eng. Lt.-Com. Aluino Martins, P.N.*

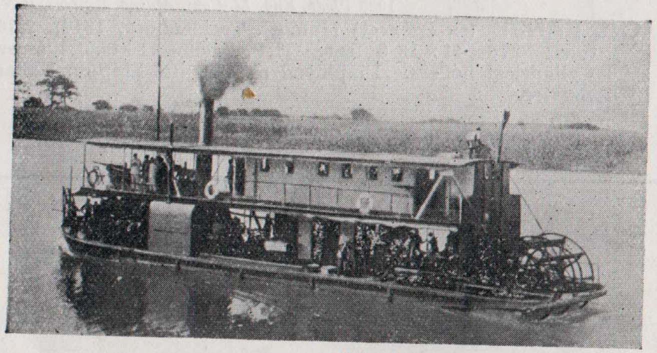
**LIDADOR** (Laird, Birkenhead, 1884). Iron. 201 tons. Dimensions: 113¾ (*p.p.*), 115 (*o.a.*) × 20 × 6½ feet. Guns: 2 Hotchkiss 47 mm. Machinery: 2 sets 2 cyl. Comp. H.P.: 400 = 11 kts. 2 screws. 1 cyl. Boiler. Coal: 40 tons = 1,528 miles at 7 kts. Complement: 40. Classed as a Tug, she is employed on Fishery Protection duties.

## River Gunboats (*Lanchas-Canhoneiros*).



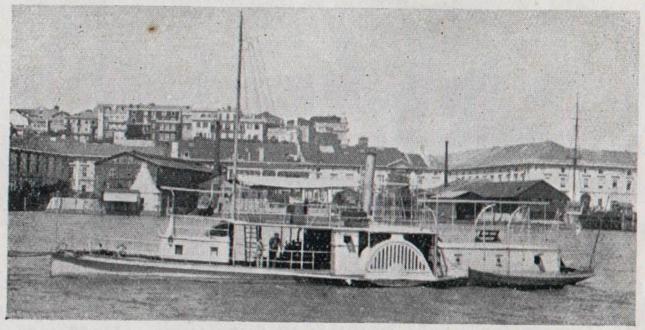
1933 *Photo, Mr. Henrique Seixas.*

**MACAU** (Yarrow, 1909). 95 tons. $119\frac{2}{3} \times 19\frac{3}{4} \times 2$ feet. Guns: **2**—6 pdr., **3** machine. H.P. 250 = 11·8 kts. Boilers: 1 Yarrow. Complement: 24. On China Station.



1933 *Photo, Mr. Henrique Seixas.*

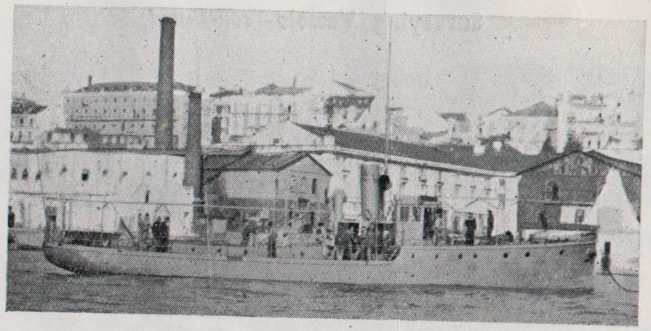
**TÉTE** (1918). 100 tons. Guns: **2**—20 mm., **2** M.G. H.P.: 200 = 9 kts. Employed on Zambesi River.



1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

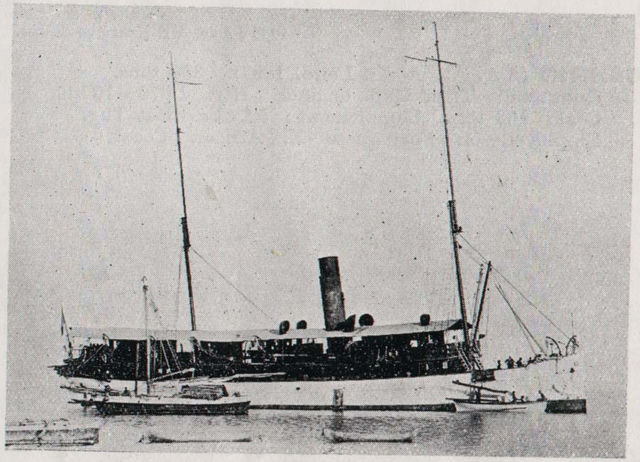
**RIO MINHO** (Lisbon D.Y., 1904). 38 tons. Paddlewheel. $80\frac{3}{4} \times 13 \times 2$ feet. H.P.: 64 = $7\frac{1}{2}$ kts. Guns: **1**—1 pdr., **1** M.G. Complement: 68, are nominally borne on her books, the majority of these ranks and ratings being actually at various shore stations on the Portuguese bank of the river Minho, for fisheries inspection, customs duties, &c.

## Patrol Boats (*Patrulhas*).



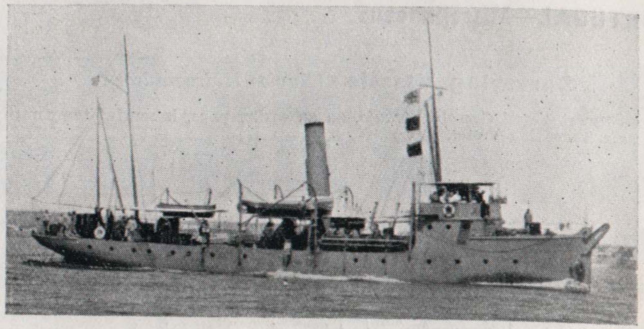
1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

**LINCE** (Italy, 1911). 78 tons. $88\frac{1}{2} \times 14 \times 6$ feet. 2 sets semi-Diesels. B.H.P.: 300 = 12 kts. 2 screws. Complement: 20. Attached to Torpedo Training School.



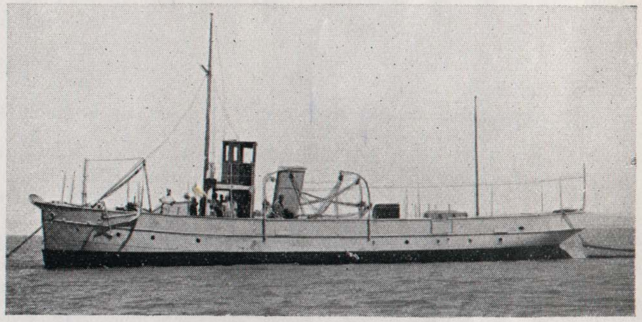
**DILI.** 500 tons. 140 (*p.p.*) × 25 × $13\frac{1}{3}$ feet. H.P.: 500 = 11 kts. 1 screw. Complement: 72. Stationed at Timor.

## Mining Tenders. (*Lança-minas*).



1933 *Photo, Mr. Henrique Seixas.*

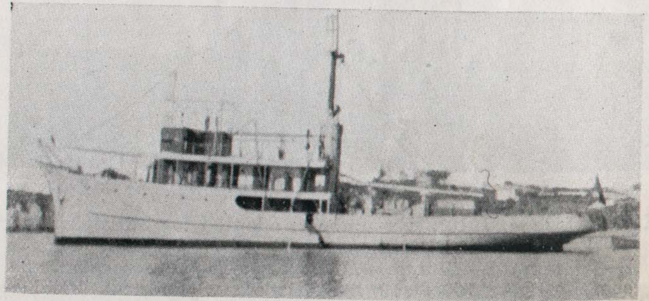
**VULCANO** (Thornycroft, 1910). 129 tons. $110 \times 19\frac{1}{2} \times 7\frac{1}{4}$ feet. H.P.: 500 = 13 kts. 2 screws. Thornycroft boiler. Complement: 38. Employed in Diving and Torpedo instruction, mounting 3 Torpedo Tubes for this purpose, besides Mine-dropping gear forward.



1933 *Photo, Mr. Henrique Seixas.*

**MINEIRO** (1892). 77 tons. $58\frac{1}{2} \times 13\frac{1}{2} \times 7$ feet. I.H.P.: 150 = 8 kts. 2 screws. Coal: 10 tons. Complement, 18.

## Lighthouse Tender. (*Navio Balizador*).

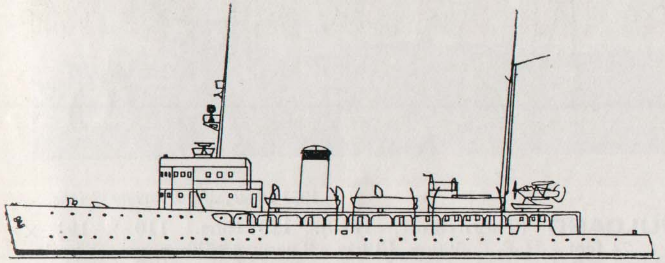


1934 *Photo, Official.*

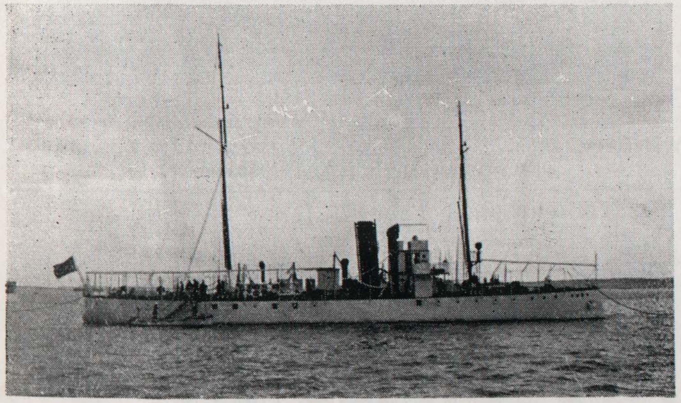
**ALMIRANTE SCHULTZ** (Penhoët, 1929). 529 tons. Complement: 39. Dimensions: $131\frac{1}{4} \times 31 \times 10\frac{3}{4}$ feet. 2 sets M.A.N. Diesels. H.P.: 350 = 11 kts. Fuel: 21 tons.

## Surveying Vessels (*Navios Hidrograficos*).

*Note.*—Escort Vessel *Carvalho Araujo*, on an earlier page, is serving temporarily as a Surveying Vessel.



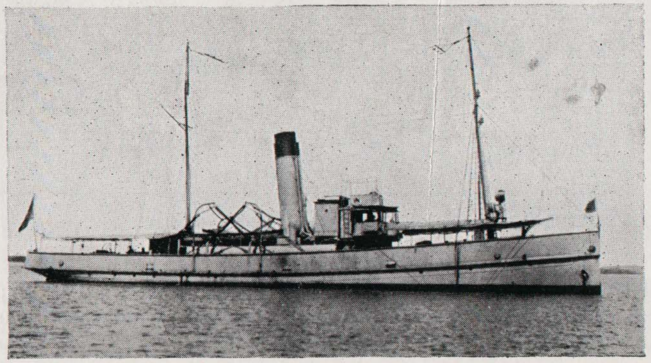
A new Surveying Vessel is being built at the new Naval Dockyard opposite Lisbon. Displacement: 960 tons (1,140 tons *full load*). Dimensions: $206\frac{3}{4}$ (*p.p.*), $215\frac{2}{3}$ (*o.a.*) × $32\frac{4}{5}$ × $9\frac{1}{2}$ feet (*mean*). 1 seaplane carried.



1937, *Eng. Lt.-Com. Aluino Martins, P.N.*

**BEIRA** (Lisbon, 1910). Ex-gunboat, adapted for Surveying in 1936. 403 tons. Dimensions: $147\frac{1}{4}$ × $27\frac{1}{4}$ × 7 feet. Guns: 2—65 mm., 2—47 mm. Machinery: Triple expansion. 2 shafts. H.P.: 700 = 13 kts. Boilers: Cylindrical. Coal: 85 tons. Radius: 3,200 miles at 9 kts. Complement: 68.

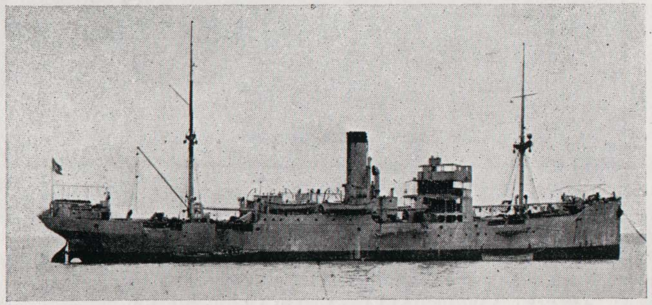
## Surveying Vessels—*continued.*



1933 *Photo, Mr. Henrique Seixas.*

**BERRIO** (S.A. At. et Ch. Loire, 1897). 350 tons. Guns: nil. Trip. Exp. engines. H.P. 1,070 = 10 kts. Coal: 103 tons. Complement: 52. Ex-Fleet Tug. Employed on Portuguese E. African Coast.

## Transport (*Transporte*).

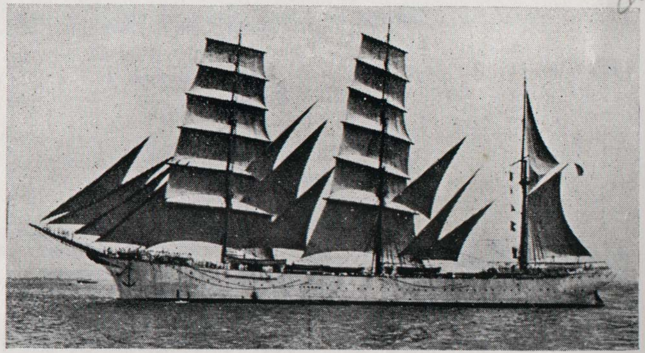


1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

**GIL EANES** (ex-*Lahneck*) (Joh. C. Tecklenborg, 1914). 2,769 tons. 278 × 41 × 16·8 feet. H.P. 2,000 = 11 kts. 1 screw. Cylindrical boilers. Employed as Hospital Ship on Fishery Service.

## Training Ship (*Navio-Escola*).

Sagr

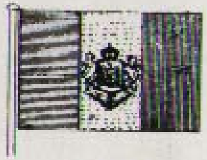


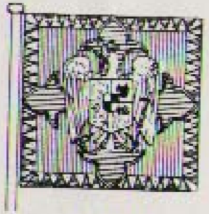
1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

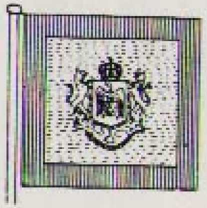
**SAGRES** (ex-*Flores*, ex-*Max*, ex-*Rickmer Rickmers*). (Bremerhaven, 1896). Displacement: 3,116 tons (1,980 tons *gross*). Dimensions: $263\frac{1}{2}$ × $40\frac{1}{3}$ × 19 feet. Guns: 4—57 mm. 2 sets Krupp Diesels. B.H.P.: 700 = 8 kts. 2 screws. Complement: 377 (including personnel under training). Captured German sailing vessel, adapted as a naval training ship, 1924–27; auxiliary motors fitted in 1931.

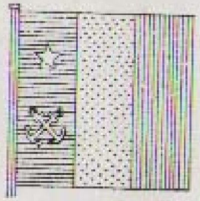
# ROUMANIA.

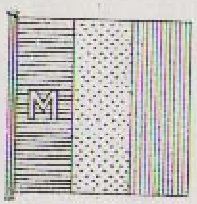
## FLAGS

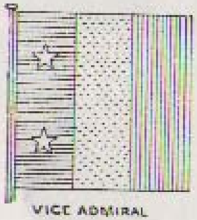

ENSIGN

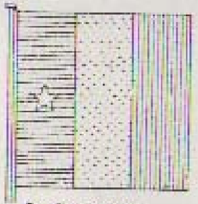

THE KING

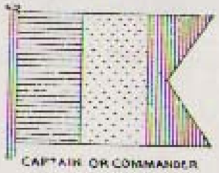

JACK

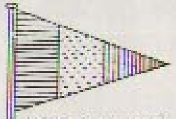

COMMANDER-IN-CHIEF*

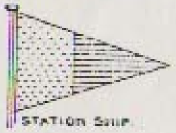

MINISTER OF MARINE AND AIR

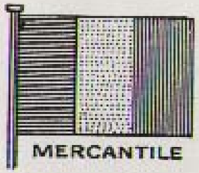

VICE ADMIRAL


REAR ADMIRAL

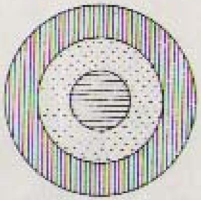

CAPTAIN OR COMMANDER


LIEUT. COMMANDER


STATION SHIP


MERCANTILE

Red ▥
White ☐
Blue ▤
Yellow ░


AEROPLANES.

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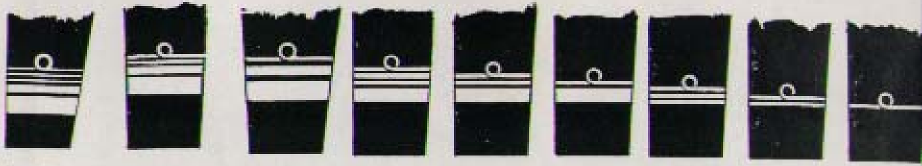
* When the C. in C. is a Vice-Admiral, as at present, this flag carries two stars and crossed anchors.

## Uniforms.



| Amiral | Vice-Amiral. | Contr'amiral. | Comandor. | Capitan-Comandor. | Locotenent-Comandor. | Capitan. | Locotenent. | Aspirent |
|---|---|---|---|---|---|---|---|---|
| *(British Admiral)* | *(British Vice-Admiral.)* | *(British Rear-Admiral)* | *(British Captain.)* | *(British Commander.)* | *(British Lt.-Com.)* | *(British Senr.-Lieut.)* | *(British Lieutenant.)* | *(Sub-Lieut.)* |

Stripes are gold (except Paymasters, who wear silver) with curl for all branches. Colour of silk above and below stripes: – Executive, black; Engineers, violet; Surgeons, dark red, almost colour: Constructors, light blue; Apothecaries, green; Musical Director, light grey.

### ADMINISTRATION.

*Minister of Marine and Air:* Radu Irimescu.

*Secretary-General:* Captain Alexandru Gheorghiu.

*Commander-in-Chief and Inspector-General of the Navy:* Vice-amiral Ion P. Bălănescu.

*Director of Navy Department:* Contr'amiral Petre I. Bărbuneanu.

*Naval Attaché, London:* Captain Gheorghe Dumitrescu.

*Mercantile Marine 1937:* 30 vessels of 88,426 gross tonnage.

*Colour of Ships:* Light grey.

*Personnel:* 250 officers, 3,000 men.

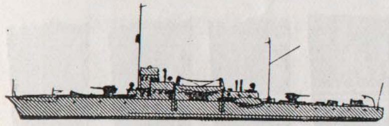
*Form of Address:* "N.M.S." ("Nava Majestății Sale").

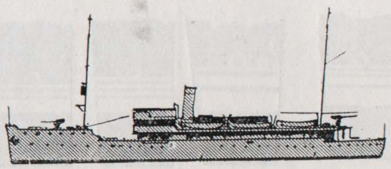
По мирно
армия 120 ты
зен арт 5 тыс
ВМФ 5 тыс
15000 т
ВВС арм единиц

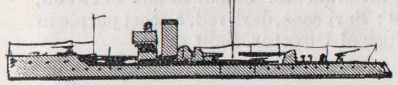
### SUMMARY OF NAVAL FORCES

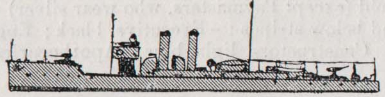
4 Destroyers.
3 Torpedo Boats.
1 Submarine.
4 Gunboats.
7 Monitors.
3 Patrol Vessels.
1 Submarine Depot and Training Ship.
1 Royal Yacht.

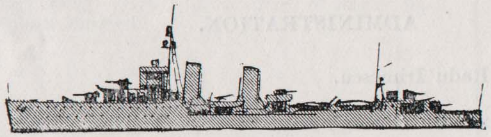
## Silhouettes.

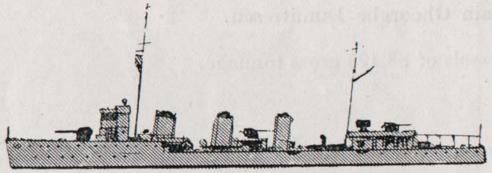

Lt. Lepri Remus *class* (4).

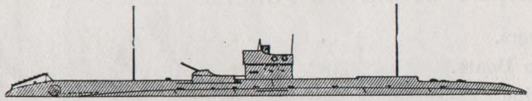

Constanta.


Sborul.

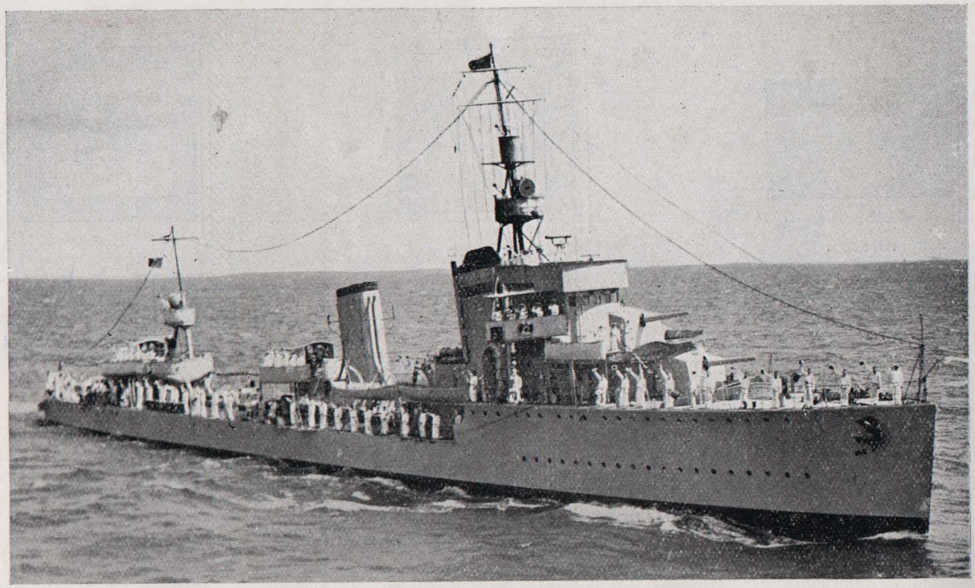

Naluca. Smeul.

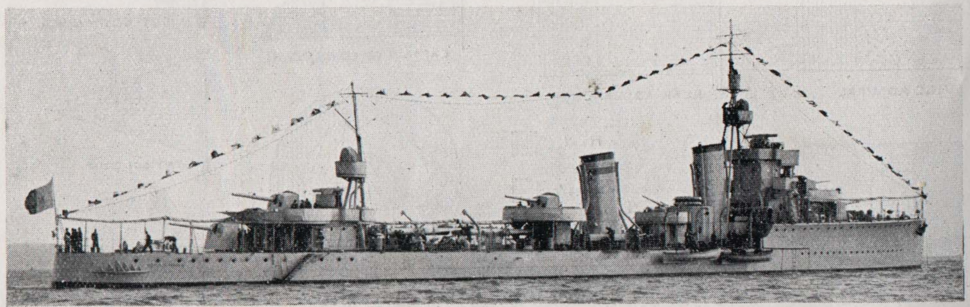

Regelè Ferdinand
Regina Maria.

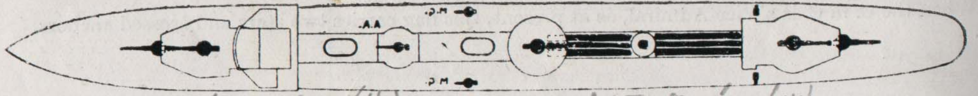

Marasti. Marasesti.


Delfinul.

## (1) **Black Sea Division** (*Divizia de Mare*). 4 **Destroyers** (*Distrugatoáre*).


Regelè Ferdinand (Note band around fore funnel) 1935.

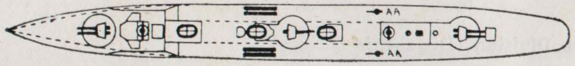

Regina Maria. 1937, *Fighting Ships.*



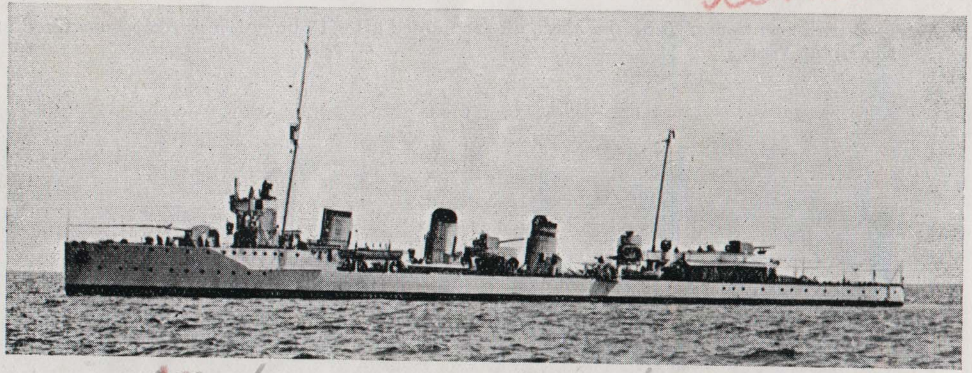
Лихой (16) Летучий (14)

2 *Thornycroft type:* **Regele Ferdinand** (Dec. 2nd, 1928), **Regina Maria** (March 2nd, 1929). Laid down at Pattison Yard, Naples, in June, 1927, to design of Messrs. Thornycroft. Displacement 1900 tons. Dimensions: 334¼ × 31½ × 11½ feet. Parsons geared turbines by Stabilimento Tecnico Triestino. H.P. 48 000 = 35 kts. Radius: 3000 miles at 15 kts. Armament: **5**—4·7 inch, 50 cal., Bofors, **1**—3 inch, AA., Bofors, **2**—2 pdr. pom-pom, **6**—21 inch torpedo tubes (tripled). 50 mines. Firing Director of Siemens type. Cost per ship, without armament £205,000. completed 1930. Complement, 212.

## Destroyers.—*continued.*



ловкий
легкий



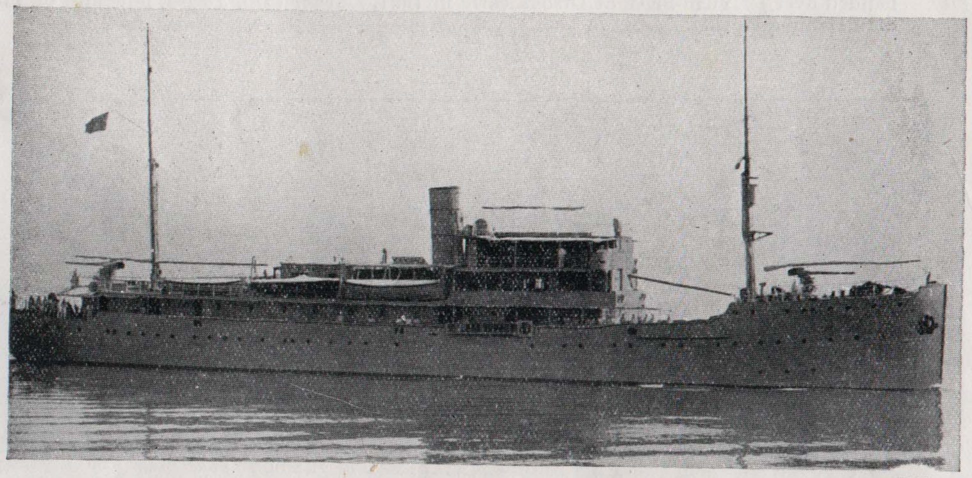
1932.

Ловкий    Легкий 24

2 *Pattison type*: **Marasti** (ex-Italian *Sparviero*, 1919), and **Marasesti** (ex-Italian *Nibbio*, 1918). 1391 tons *normal* (1723 tons *full load*). Dimensions: 309½ (*p.p.*) × 31 × 11½ feet. Guns: 5—4·7 inch, 2—3 inch. 40 cal. AA. 2 M.G. Tubes: 4 17·7 inch in twin deck mountings. Searchlights: 1—36 inch. Designed S.H.P. 45,000 = 34 kts. Trials: *Marasesti*, 48,020 S.H.P. = 38·04 kts., 2 Tosi turbines. 2 screws. 5 Thornycroft oil burning boilers. Oil: 260 tons = 1700 miles (15 kts.), 380 miles (full speed). Complement: 139.

*Notes.*- Belong to class of 4 Destroyers, *Vifor*, *Viscol*, *Vârtej*, *Vijelia*, ordered for Roumanian Navy about 1913. Were requisitioned for Italian Navy during war and re-named *Aquila*, *Falco*, *Nibbio*, *Sparviero*. Last two re-purchased by Roumania 1920, and renamed after actions fought in 1917. Refitted and rearmed at Galatz and Naples, 1925-26.

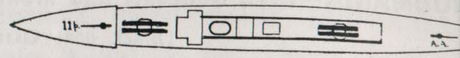
## Submarine Depot and Training Ship (*Nava Mama*).

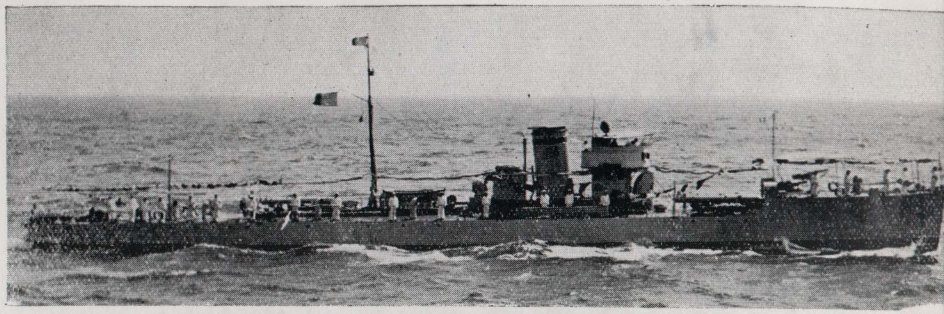


1931.

**CONSTANTA** (November 8, 1928). Laid down at the Quarnaro Yard, Fiume, August 15, 1927, completed in 1931. Displacement: 1,350 tons. Dimensions: 255¾ × 37 × 13¼ feet. 2 sets Diesels. B.H.P.: 1,000 = 13 kts. Radius: 12,000 miles. Guns: 2—4 inch, 2 M.G. 3 sets generating sets. H.P.: 136. Fitted with engineering and torpedo shops; bakery; torpedo loading room; salvage, diving and submarine signalling apparatus. Also employed as Cadets' Training Ship.

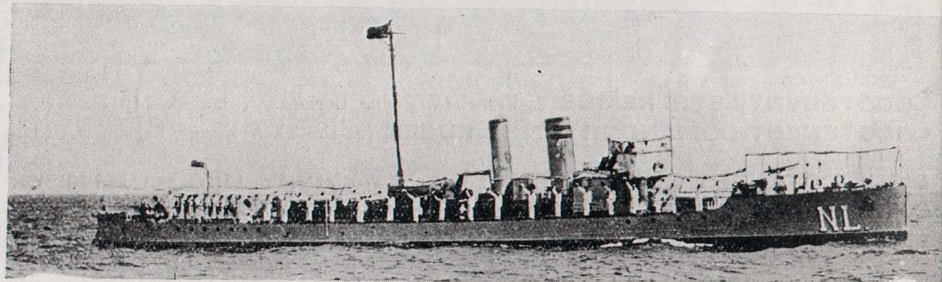
## 3 Torpedo Boats. (*Torpiloare*).





1934.

1 Ex-Austrian boat: **Sborul** (ex-*81T*). (Stab. Tecnico Triestino, Trieste, 1913-14). Displacement: 262 tons. Din
sions: 189¾ × 19 × 5 feet. Guns: 2—11 pdr. Torpedo tubes: 4—17·7 inch. Designed S.H.P. 5000 = 28 kts. (24
speed now) Turbine engines and Yarrow boilers. Fuel: 18 tons coal + 24 tons oil. *Sborul* means Flight.

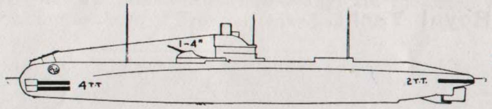


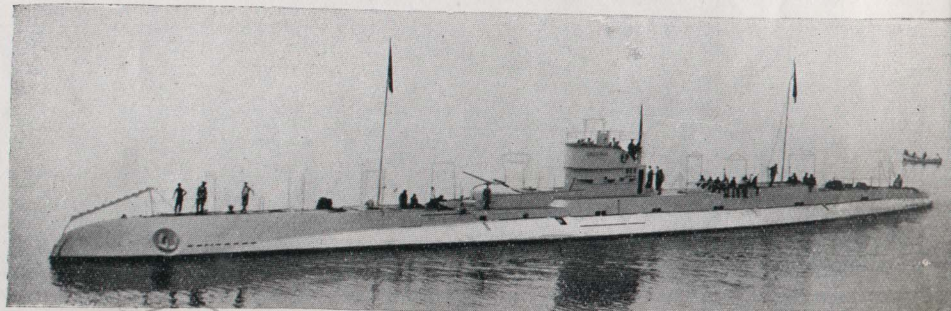
NALUCA.

1935.

2 Ex-Austrian boats: **Naluca** (ex-*82F*), **Smeul** (ex-*83F*), (Ganz-Danubius Co., Porto Ré, Fiume, 1913-14.) 260 to
Beam, 19 feet. Guns: 2—11 pdr., 2 M.G. No tubes. 1—16·5 inch S.L. Fuel: 20 tons coal + 34 tons oil, ot
details as *Sborul* above. *Smeul* = Dragon. *Naluca* = Phantom.

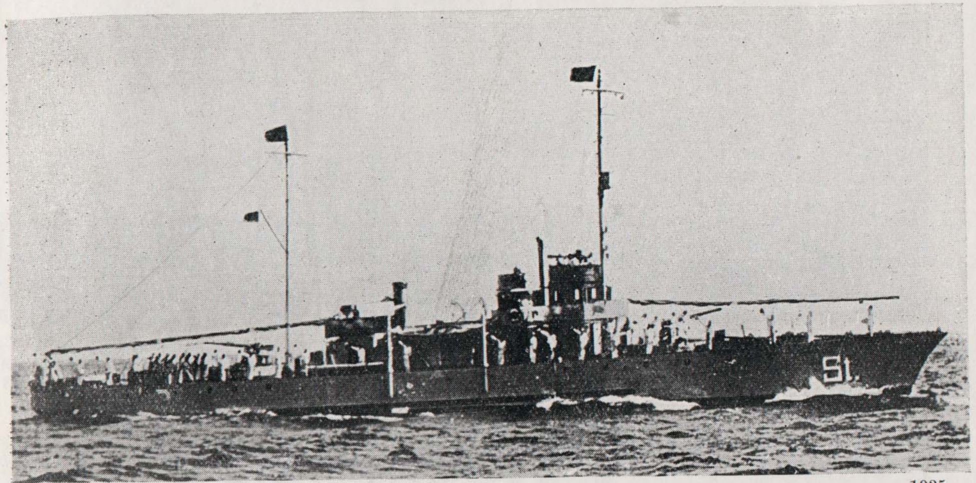
## Submarine.





1 *Quarnaro* boat: **Delfinul.** (22 June 1930). Displacement: $\frac{650}{900}$ tons. Dimensions: 225 × 19½ × 12 feet. Speed $\frac{14}{9}$ kt
Guns: 1—4 inch, 35 cal. Tubes: 8—21 inch. Completed 1931, but not taken over by Roumania until April, 193

## (Black Sea) Gunboats (*Canoniere*).



STIHI EUGEN. 1935.

**LOCOTENENT LEPRI REMUS** (ex-French *Chiffonne*, Lorient D.Y. launched 1917).

**LOCOTENENT-COMANDOR STIHI EUGEN** (ex-French *Friponne*, Lorient D.Y., launched 1916).

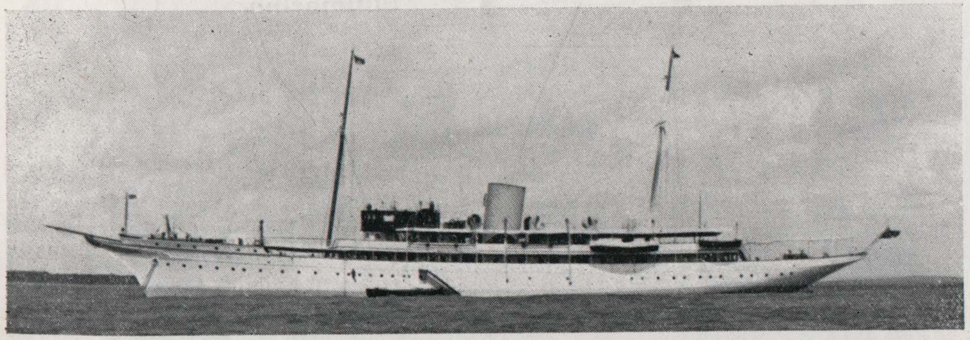
**SUBLOCOTENENT GHICULESCU** (ex-French *Impatiente*, Brest D.Y., launched 1916).

**CĂPITAN DUMITRESCU C.** (ex-French *Mignonne*, Brest D.Y., launched 1917).

Displacement: 400, 450, 350, 390 tons respectively. Length: 189½ to 199¾ ft. Beam: 22 ft. 7 in. Draught: first pair, 9¼ ft.; second pair, 7¾ ft. Guns: 2—3·9 inch. 2 M.G. S.L.: 2—15·7 inch. Engines: 2 sets of Sulzer Diesel motors. B.H.P. 900 = 15 kts. Fuel carried: 30 tons oil = 3000 miles (10 kts.), 1600 miles (15 kts.) Complement, 50.

*Notes.*—Purchased from French Navy, 9th January, 1920. Entered service 15th Jan., 1920. Are differentiated by coloured rings around crowsnest. Names are those of naval officers killed in action, 1916-18.

## Royal Yacht.



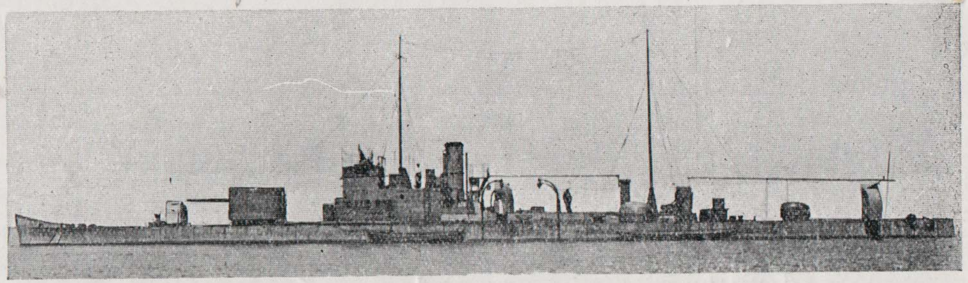
LUCEAFARUL. *Added 1937, courtesy Messrs. G. L. Watson & Co., (Designers).*

**LUCEAFARUL** (ex-*Nahlin*). (Clydebank, 1930). Purchased 1937. Displacement, 2,050 tons. Dimensions: 250 (*w.l.*), 296 (*o.a.*) × 36 ×—feet. Machinery: Brown Curtis geared turbines. S.H.P. 4,000 = 17·5 kts. Oil fuel.

## (2) Danube Division (*Divizia de Dunǎre*).

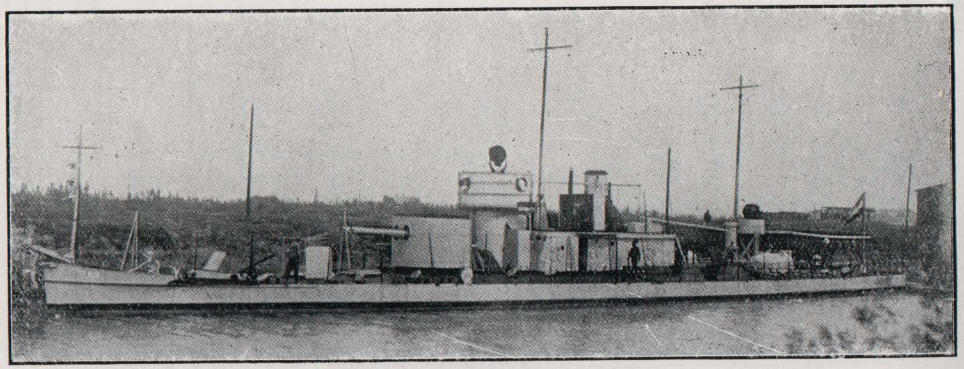
### Monitors (*Monitoare*).

*Note.*—With exception of *Bratianu* class, all are named after Roumanian provinces acquired after the Great War.



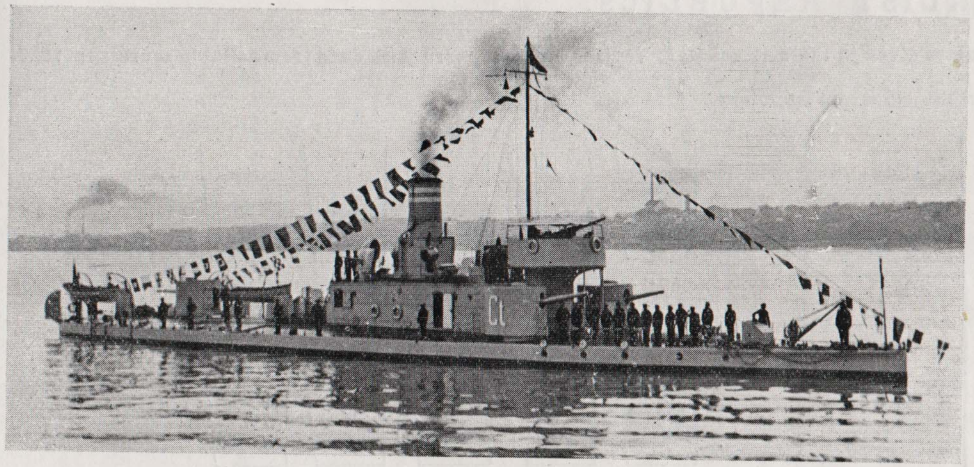
(Now has 2 white bands around funnel. Has flush deck forward.)

**BUCOVINA** (ex-Austro-Hungarian *Sava*, launched 1915). Displacement, 550 tons. Dimensions: 190¼ × 33·8 × 4¼ feet. Guns: 2—4.7 inch, 45 cal. Skoda (paired in single turret forward) + 2—4.7 inch, 10 cal. howitzers (fortress type, singly mounted in pits with cupola protection), 2—66 m/m. (AA., twin-mounted in turret), 2—47 m/m., and 6 M.G. 1—24 inch searchlight. Armour: 1½″ Belt and Bulkheads, 1″ Deck, 2″ C.T., 2″ Turret and Cupolas. 3 magazines with water-jackets and electric-controlled refrigerators. Designed H.P. 1600 = 12 kts. Boilers: Yarrow. Fuel: 75 tons, oil *only*. Complement, 90 to 100. Built under 1914-15 Austro-Hungarian Naval Programme, completed 1915. Interned at Novi Sad 1919-20 and handed over by Yugo-Slavs at Orsova early in 1921. Sister ship, *Drava*, now unit of Yugo-Slav Danube Flotilla.



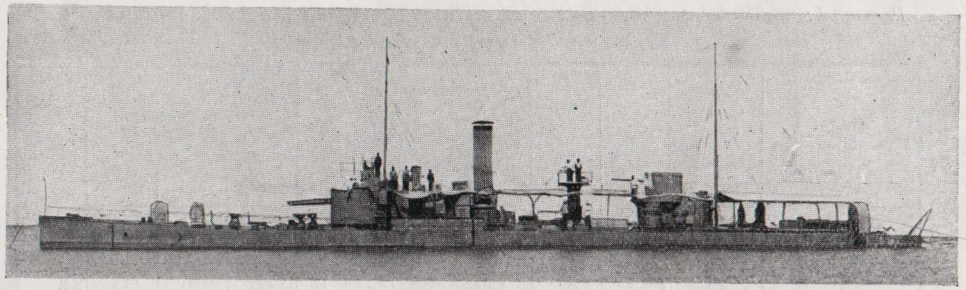
**BASARABIA** (ex-Austro-Hungarian *Inn*. launched 1915). Displacement. 590 tons. Dimensions: 203¼ (*o.a.*) × 34½ × 4¼ feet. Guns: 2—4.7 inch, 45 cal. + 3—4.7 inch, 10 cal. howitzers, 2—47 m/m., 9 M.G. Armour: 1½ Belt and Bulkheads, 1″ Deck, 2″ Turret and Cupolas, 2″ C.T. Designed I.H.P. 1500 = 12 kts. Boilers: Yarrow. Fuel: 70 tons, oil *only*. Complement, 100. Built under Austro-Hungarian 1912 Naval Programme; interned at Novi Sad 1919-20, handed over by Yugo-Slavs at Orşova early in 1921. Sister ship *Vardar*, now unit of Yugo-Slav Danube Flotilla is shown above

## (Danube) **Monitors**—*continued.*



L. Catargiu. 1934

**ION C. BRĂTIANU** (1907), **MIHAIL KOGĂLNICEANU** (1907), **ALEXANDRU LAHOVARI** (1908), and **LASCĂR CATARGIU** (1907). Displacement: 680 tons. Complement, 110. Dimensions: $208\frac{1}{4} \times 33\frac{3}{4} \times 5\frac{1}{4}$ feet. Guns (Skoda): **3**—4.7 inch, 35 cal. (2—4.7 inch howitzers removed during the War), **1**—3 inch. AA., **2**—47 m/m., **2** M.G. **1**—30.7 inch searchlight. Armour: 3" Belt, 3" Deck, 3"—2" Turrets. H.P. 1800 = 13 kts. Coal: 60 tons. Built by Stabilimento Tecnico Triestino, at Trieste, in sections, re-erected at Galatz. Deck cabins and military masts removed during the War. All named after 19th century Roumanian statesmen.

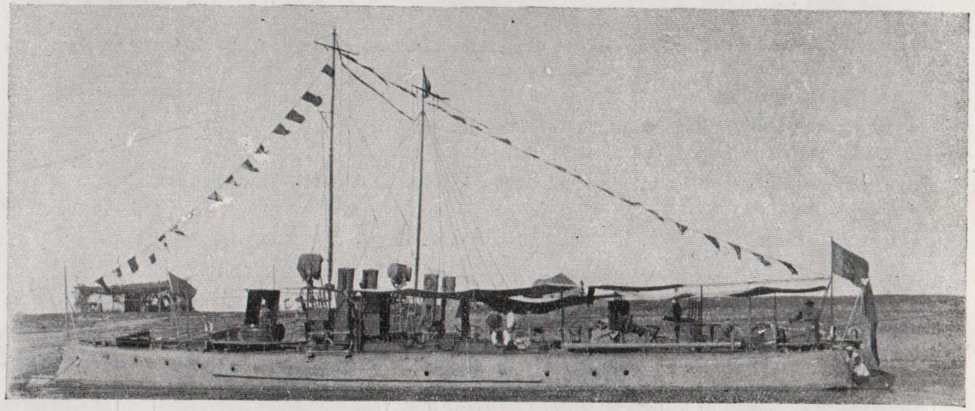


1922 *Photo.*

**ARDEAL** (ex-Austro-Hungarian *Temes*, 1904). Displacement: 450 tons. Complement, 80 to 90. Dimensions: $183\frac{1}{2} \times 31\frac{1}{4} \times 3\frac{3}{4}$ feet. Guns: **2**—4.7 inch, 35 cal., **1**—3.5 inch AA., **2**—47 m/m., **4** M.G. Armour: $1\frac{1}{2}$" Belt, 3" and $1\frac{1}{2}$" Turrets, $1\frac{1}{2}$" Bulkheads, 1" Deck. H.P. 1400 = 10 kts. Fuel capacity: 60 tons. Was originally built as a sister-ship to *Sava*, of Yugo-Slav Navy. While serving on Danube as Austro-Hungarian *Temes*, she was sunk in October, 1914, but was raised in June, 1916, and entirely rebuilt 1916-17; she is thus, compared with others of the same original design, a practically new Monitor. Re-entered service April, 1917. Interned at Novi Sad, 1919-20; handed over at Orşova by Yugo-Slavs early in 1921. Easily identified by her tall, thin funnel and raised gun aft, mounted during reconstruction, 1916-17. No other Monitor exists with this arrangement, except Yugo-Slav *Morava*, and her guns are not all in turrets.

*Note.*—*Ardeal* is the Roumanian name for the province of Transylvania.

## (Danube) **Patrol Vessels** (*Vedete*).



1922.

3 *Major Sontu* class: **CĂPITAN ROMANO MIHAIL,** (No. 3). **LOCOTENENT CALINESCU DIMITRIE,** (No. 7). **MAIOR ŞONŢU GHEORGHE,** (No. 5).

(Thames Iron Works, 1906.) Displacement, 50 tons. Dimensions: $100 \times 13 \times 2\frac{3}{4}$ feet. Armament: **1**—47 m/m. Skoda, **1** machine. **1**—20 inch S.L. Some have a light steel c.t. with s.l. on top. 2 screws. H.P.: 550 = 18 kts. Oil fuel: $7\frac{1}{2}$ tons. Complement, 20. Differentiated by large coloured numerals on funnels. Their two twin funnels, ram bows and round tunnel sterns make their recognition easy. *Capt. V. Mârâcineau* mined 1916. 3 more of this type have been transferred to the Frontier Guard organisation, their names being *Maior Ene Constantin* (No. 1), *Capitan Nicolae Lascăr Bogdan* (No. 2), and *Maior Grigore Ioan* (No. 8). All are named after Army officers who fell in the War of Independence, 1877.

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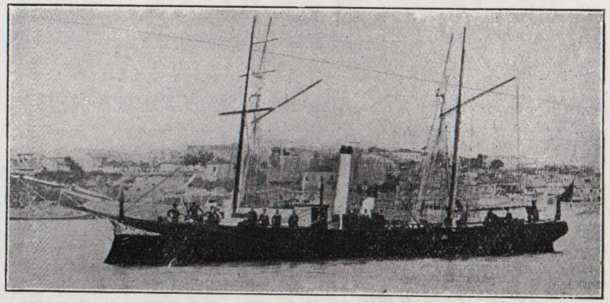
## FRONTIER GUARD VESSELS.

In addition to the Regular Navy, the vessels detailed below compose a separate force, with personnel detached from the regular service, under a Captain, R. Roumanian Navy. These craft are known as *Grupul de Vaseale Grănicerilor* (Group of Frontier Guard vessels). They are under the Army, but uniforms worn by personnel are the same as those of Navy, except for aiguillettes corresponding to those of Frontier Guard troops. Headquarters and base are at Braila.



Bistrita. (Painted grey.)

**BISTRIŢA** (Blackwall, 1888). 95 tons. Dimensions: $100 \times 13 \times 6\frac{1}{2}$ feet. Guns: **1**—37 mm. H.P.: 400 = 12 kts. Oil: 12 tons. Complement: 20. Classed as Police Gunboat (*Nava de Politie*).

*Note.*—Besides 3 patrol vessels, mentioned in the upper section of this column, there are also 14 motor launches, of which four bear names, the others numbers, included in the Frontier Guard organisation. All are painted white.

# RUSSIA.

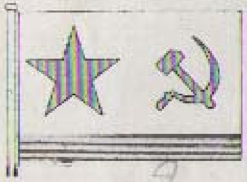
## UNION OF SOVIET SOCIALIST REPUBLICS.

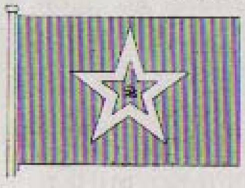
**It is extremely difficult to secure accurate information regarding the Russian Navy, but the particulars given in these pages were revised and compared with data from reliable sources in 1937.**

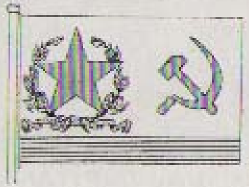
Displacements of more important ships are standard.

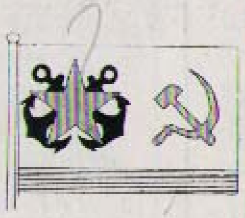
*Minister of War and Marine.*—Marshal K. E. Voroshilov.
*Chief of Navy Dept.*—Admiral Viktorov.
*Naval Attaché, London.*—Engineer Rear-Admiral L. Antsipo-Chikunsky.

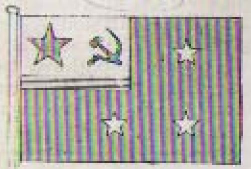
### Naval Flags.

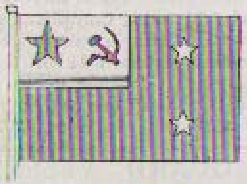

**NATIONAL FLAG.**

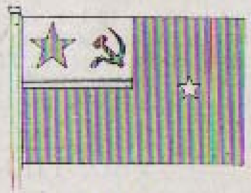

**JACK.**

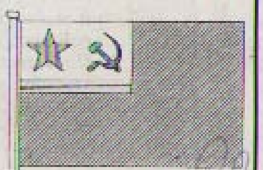

**COMMANDER IN CHIEF.**

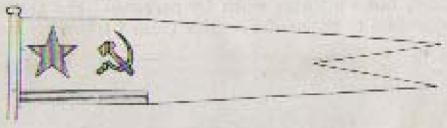

**CHIEF OF STAFF.**

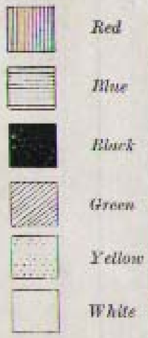

**OFFICER COMMANDING NAVAL FORCES.**

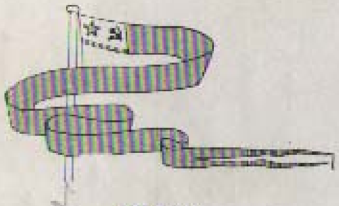

**SENIOR FLAG OFFICER.**

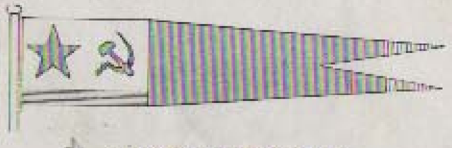

**JUNIOR FLAG OFFICER.**


**COMMODORE**


**SENIOR OFFICER AFLOAT.**

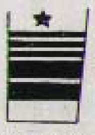


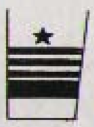

**PENDANT.**

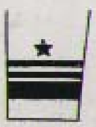

**COMMANDER OF FLOTILLA.**

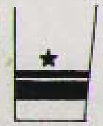
### Mercantile Marine.

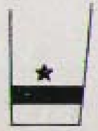
From "Lloyd's Register," 1937 figures, 672 vessels of 1,258,236 *gross* tonnage.

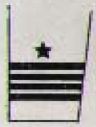

Admiral of the Fleet.

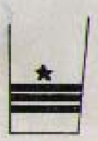

Admiral.

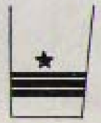

Vice-Admiral.

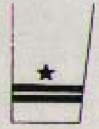

Rear-Admiral.

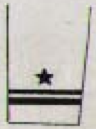

Commodore.


Captain.


Commander.


Lieut.-Commander.


Lieut., senior.


Lieut., junior.

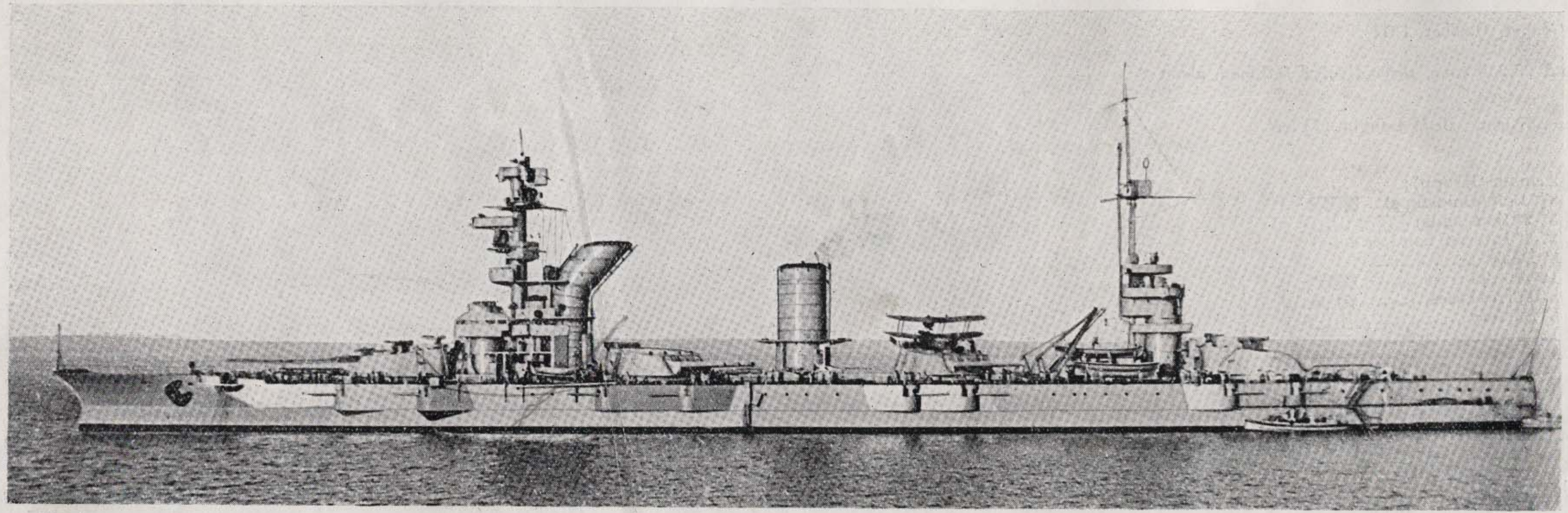
### Distribution of Fleet.

Reports from Japanese sources indicate that the Soviet Fleet based on Vladivostok includes 50 submarines, over 50 motor torpedo boats and a number of patrol vessels of various types. "Fighting Ships" has secured independent evidence which goes far to support these figures. Vessels in question are believed to have proceeded to their present station by way of North East Passage.

*Personnel:* 23,600 (about 10,000 seagoing). These figures have probably been increased.

### Modern Naval Guns (Obukhoff).

| Designation. | | Length in Calibres. | Weight of Guns. | Weight of A.P. Shot. | Initial Velocity (approximate). | *Maximum* Penetration with A.P. Capped Shell against K.C. Armour. | | | Danger Space against average warship at | | | Usual Rounds per minute. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 10,000 yds. | 5000 yds. | 3000 yds. | 10,000 yards. | 5000 yards. | 3000 yards. | |
| C.M. | inch. | calibres. | tons. | lbs. | f.s. | in. | in. | in. | yards. | yards. | yards. | |
| 30·5 | 12 | 52 | 48·2 | 714 | 3000 | ... | 14½ | 20 | ... | ... | ... | ... |
| 18.0 | 7.1 | 55 | | | | | | | | | | |
| | 6 | 45 | 7½ | 89 | 2900 | ... | 4¾ | 6 | 60 | 250 | 485 | 3 |
| | 6 | 45 | 7 | 89 | 2600 | ... | 3¼ | 5 | 50 | 200 | 430 | 3 |
| 13·0 | 5·1 | 55/60 | ... | . | .. | ... | ... | ... | ... | ... | .. | ... |
| 12·0 | 4·7 | 50 | 2¼ | 46 | 2600 | ... | ... | ... | ... | ... | ... | about 4 |
| 10·2 | 4 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 10·0 | 3·9 | 60 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 7·5 | 3 | 60 | 14 cwt. | 13⅘ | 2700 | | ... | ... | ... | ... | ... | ... |
| 6·3 | 2·5 | 35 | 12 „ | 13⅓ | 2600 | | ... | | ... | ... | ... | ... |



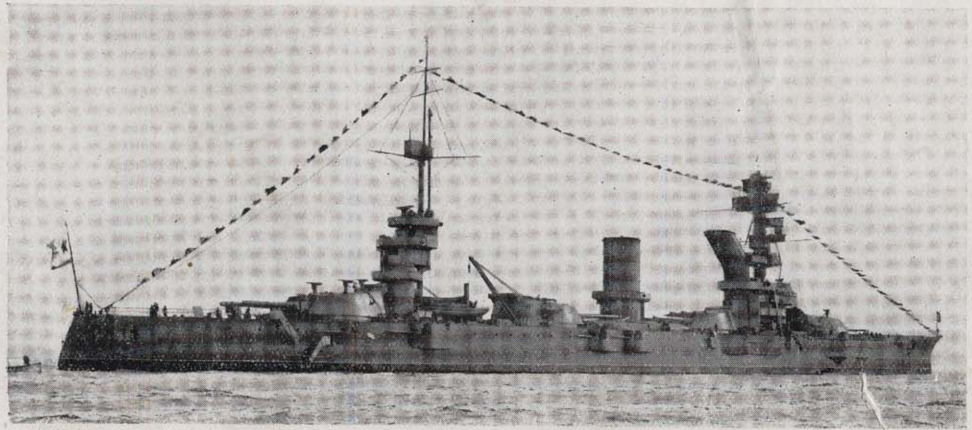
MARÁT.

1935, *Nautical Photo Agency.*

# New Construction

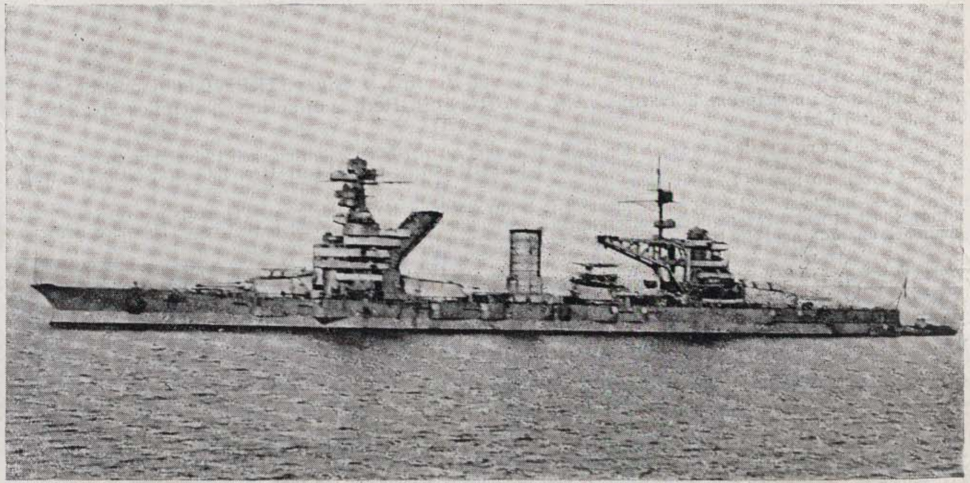
3 ships of 35,000 tons *projected.* To be armed with **9**—16 inch guns. First will probably be laid down at Leningrad in 1938, guns, armour and boilers having been ordered abroad.

(*For particulars of ships illustrated here, see following page.*)



MARAT

1937, *Fighting Ships.*



OKT. REVOLUTIA.

1935 *Nautical Photo Agency.*

## RUSSIA—Battleships

**PARISKAYA-KOMMUNA** (ex-*Sevastopol*, June, 1911),

**MARAT** (ex-*Petropavlovsk*, Sept., 1911), [illegible]

**OKTIABRSKAYA-REVOLUTIA** (ex-*Gangut*, October, 1911).

Standard displacement, 23,016, 23,606 and 23,256 tons, respectively; *full load*, about 26,000 tons. Complement, 1125.

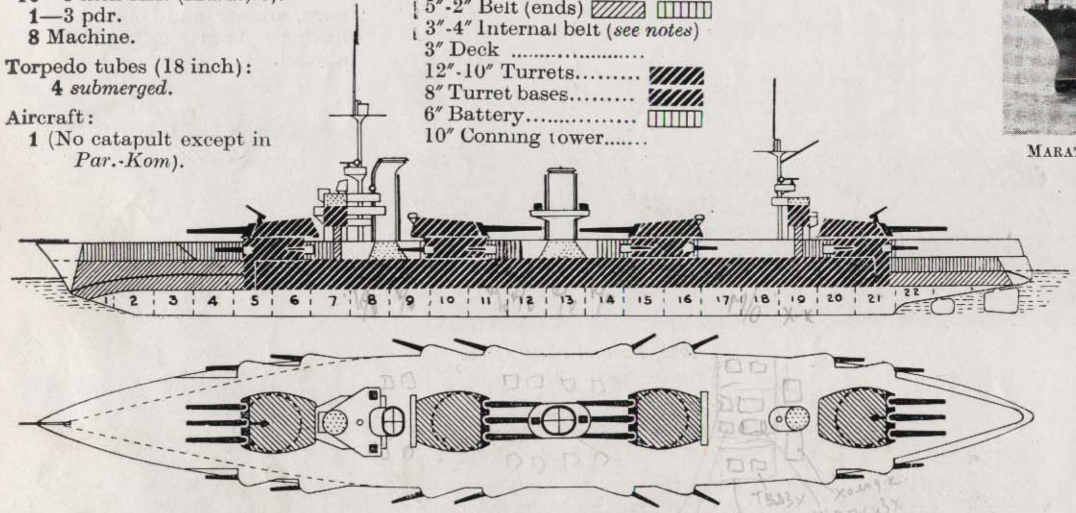
Length *over all*, 619 feet. Beam, 87 feet. *Mean* draught, 27½ feet.

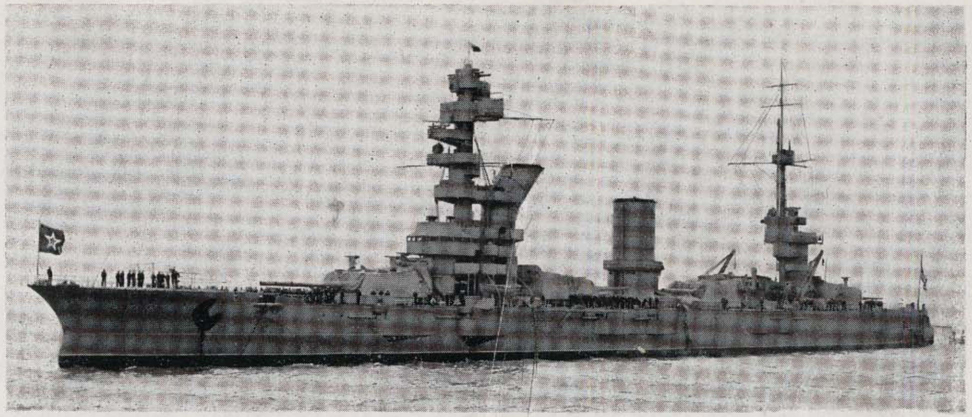
Guns:
**12**—12 inch, 52 cal.
**16**—4·7 inch, 50 cal.
**10**—3 inch AA. (*Marat*, 6).
**1**—3 pdr.
**8** Machine.

Torpedo tubes (18 inch):
**4** *submerged*.

Aircraft:
**1** (No catapult except in *Par.-Kom*).

Armour (Krupp):
8¾" Belt (amidships) ... ▨
5"-2" Belt (ends) ▨ ▥
3"-4" Internal belt (*see notes*)
3" Deck ....................
12"-10" Turrets......... ▨
8" Turret bases......... ▨
6" Battery................ ▥
10" Conning tower.......





MARAT. 1937, *Fighting Ships*.

Machinery: Parsons turbine. 4 screws. Boilers: 25 Yarrow. Designed H.P. 42,000=23 kts. Coal *normal*, 1,000 tons; *maximum*, 3000 tons. Also 1,170 tons oil. Radius of action: 900 miles at 23 kts., 4,000 miles at 16 kts.

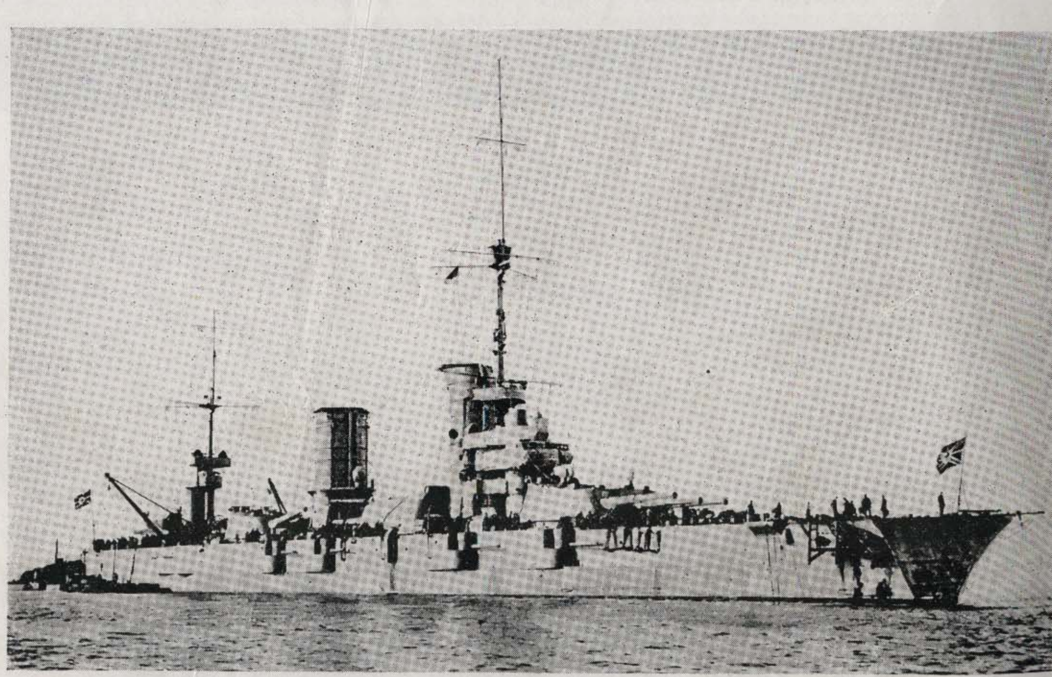
*Gunnery Notes.*—The port plate above each gun is in the form of a hinged flap, allowing each 12-inch gun to elevate to 30—40° *maximum*. Arcs of fire: End triple 12-inch barbettes, 310°; central barbettes, 130° *each beam*; aft group of 4—4·7 inch, 90°; other 4·7 inch, 85°.

*Armour Notes.*—Belt is about 15 feet wide, 5 feet of it below water, uniform thickness. There is a *secondary* 3"-4" internal belt 11 feet inboard above protective deck, extending between the end barbettes. The space between main belt and internal belts is divided up into w.t. compartments.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials: Full power* | *Boilers* | *Best recent speed* |
|---|---|---|---|---|---|---|---|
| *Marat* | Baltic Works | Baltic Works | June,'09 | Jan. '14 | About 50,000=23·4 | Yarrow | 20 |
| *P.Kommuna* | | Franco-Rus. Works | June,'09 | Jan. '15 | | | 16 |
| *Okt. Revolutia* | Galernii | | | Jan. '14 | | | 18 |

*General Notes.*—The late Gen. Vittorio Cuniberti prepared the original designs for this type. The Ministry of Marine afterwards altered the plans to include Russian ideas of armouring, ice-breaking bows and other special features. Further, to obtain a higher speed, hull design is relatively lighter than in contemporary battleships of other fleets. Said to be most unhealthy, insanitary and badly ventilated.

A fourth ship *Mihail Frunze* is understood to have been condemned, but may actually be in course of refit.



PARISKAYA-KOMMUNA (Now has tripod foremast, aircraft and catapult). 1930 *Photo.*

"*Pariskaya-Kommuna*" proceeded to Black Sea early in 1930 in company with "*Profintern.*" General condition reported to be unsatisfactory, and official explanation of her remaining in Black Sea is that she could not face the return passage.

[illegible]

**KRASNI KAVKAZ** (ex-*Ad. Lazarev*, June, 1916. Nikolaiev).

Displacement: 8,030 tons. Complement: 624.

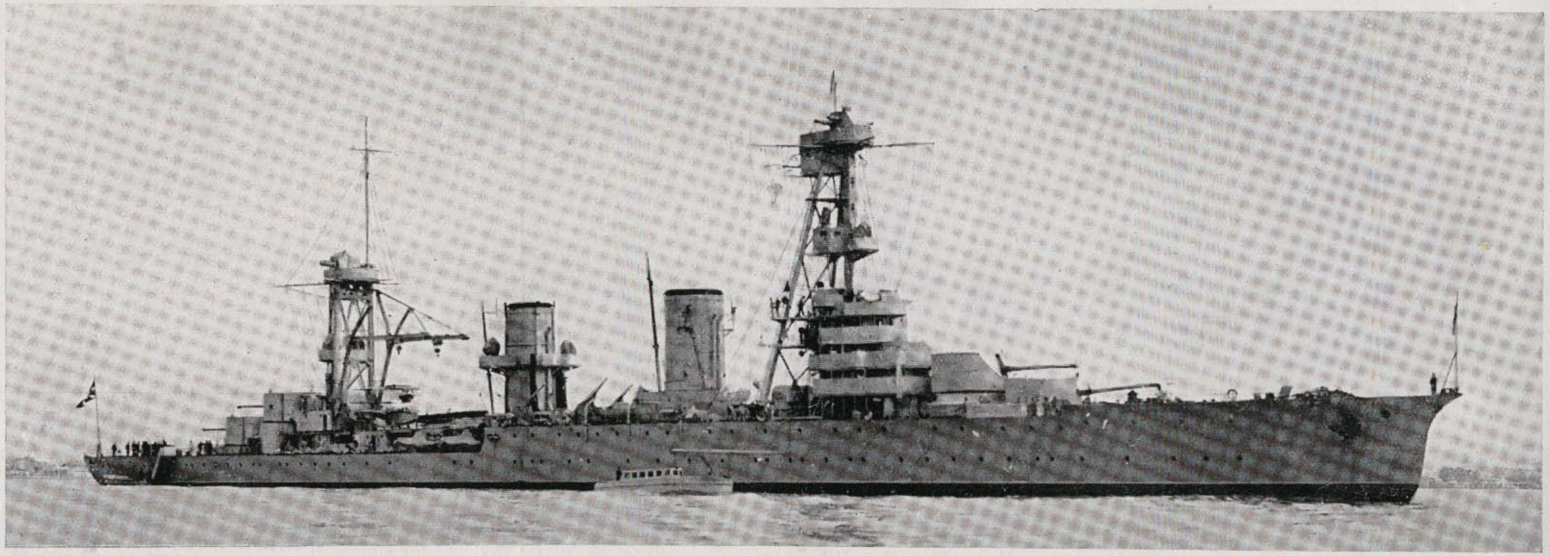
Length, 507¾ feet. Beam, 50½ feet. Draught, 20⅓ feet.

Guns:
4—7·1 inch.
4—4 inch AA.
4—37 mm. AA.
4 M.G.

Tubes:
12—21 inch (tripled).

Mines: 100.

Aircraft:
1, with catapult.

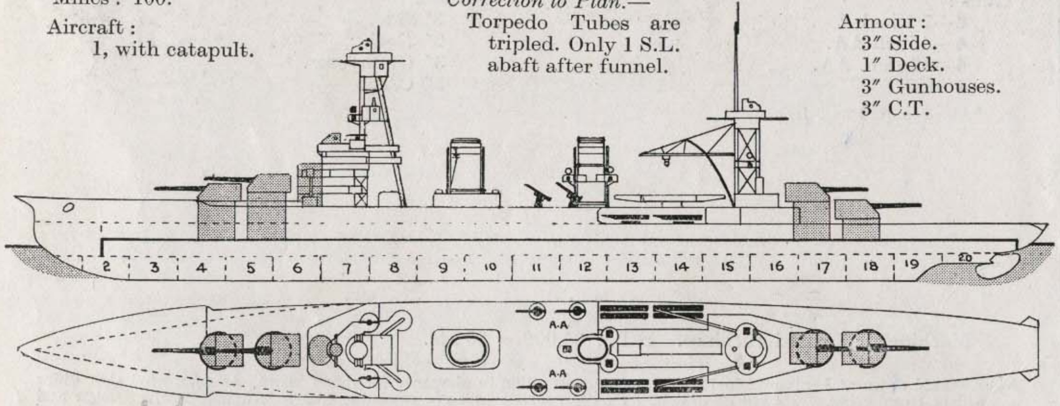


KRASNI KAVKAZ.

1934 *Photo, favour of R. I. T. Falkner, Sub.-Lieut., R.N.*

*Correction to Plan.*—
Torpedo Tubes are tripled. Only 1 S.L. abaft after funnel.

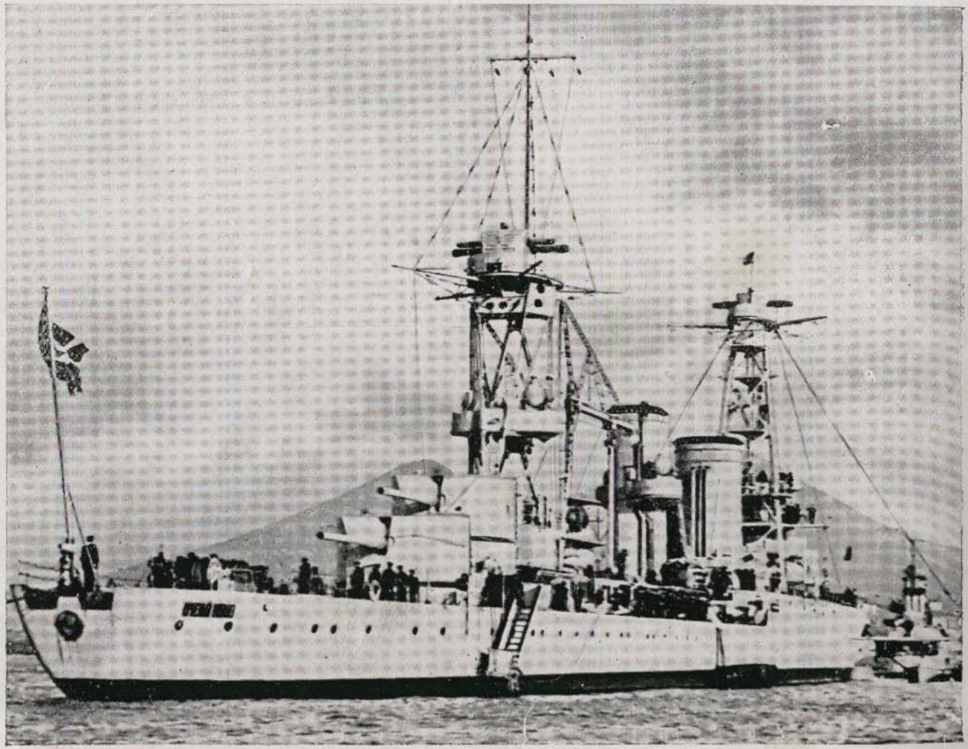
Armour:
3″ Side.
1″ Deck.
3″ Gunhouses.
3″ C.T.



Bz. Boveri–

Machinery: Parsons Turbines. H.P.: 55,000 = 30 kts. Boilers: 13 Yarrow. Coal: 540 tons. Oil: 690 tons = 3,700 miles at 14 kts.

*Note.*—Laid down in 1914, the construction of this ship was held up for many years. As completed, *Krasni Kavkaz* mounts an entirely different armament from *Profintern* and *Chervonaya Ukraïna*, to which she was originally to have been a sister. She is said to be fitted for minelaying.



KRASNI KAVKAZ.

1934 *Photo, Herr Torsten Hallonblad.*

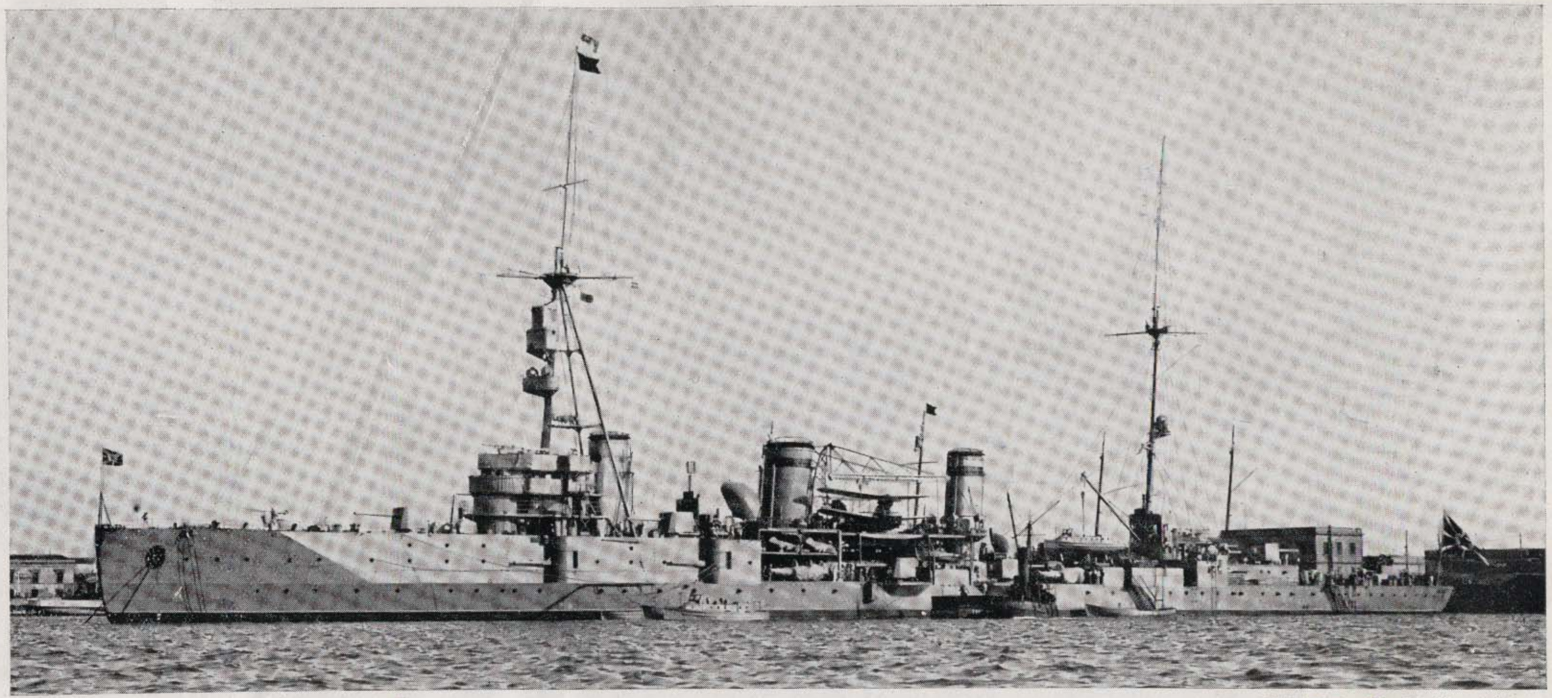
[illegible]

**PROFINTERN** (ex-*Sovnarkom*, ex-*Klara Zetkin*, ex-*Svietlana*, June, 1915. Reval).

**CHERVONAYA UKRAÏNA** (ex-*Ad. Nakhimov*, October, 1915. Nikolaiev).

41

Displacement, 6,600 and 6,934 tons, respectively. Complement, 624. Length, 507¾ feet. Beam, 50⅓ feet. Draught, 18⅓ feet.



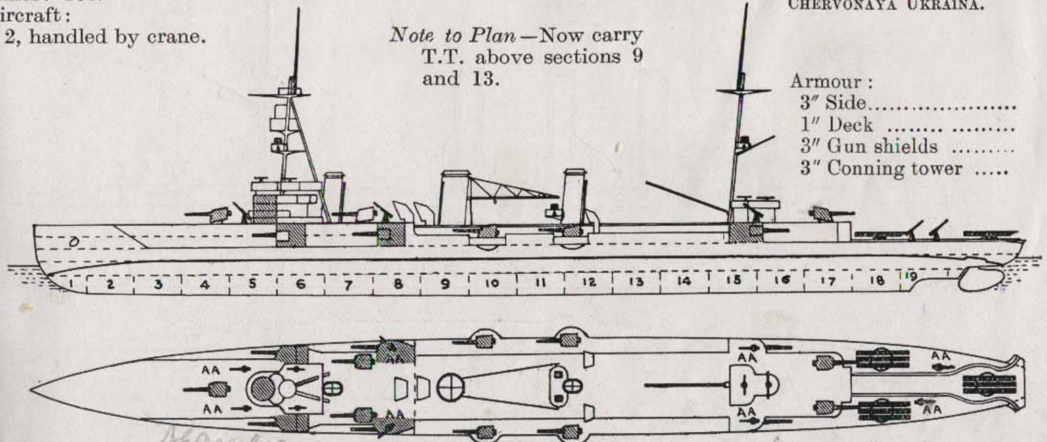
CHERVONAYA UKRAÏNA.

1934 *Photo, Sig. F. Cianciafara.*

Guns:
15—5·1 inch, 55 cal.
8—4 in. AA.
4 machine.
Torpedo Tubes: (21 inch)
12 in Triple Mounts.
Mines: 100.
Aircraft:
2, handled by crane.

*Note to Plan*—Now carry T.T. above sections 9 and 13.

Armour:
3″ Side....................
1″ Deck .......  .........
3″ Gun shields .........
3″ Conning tower .....



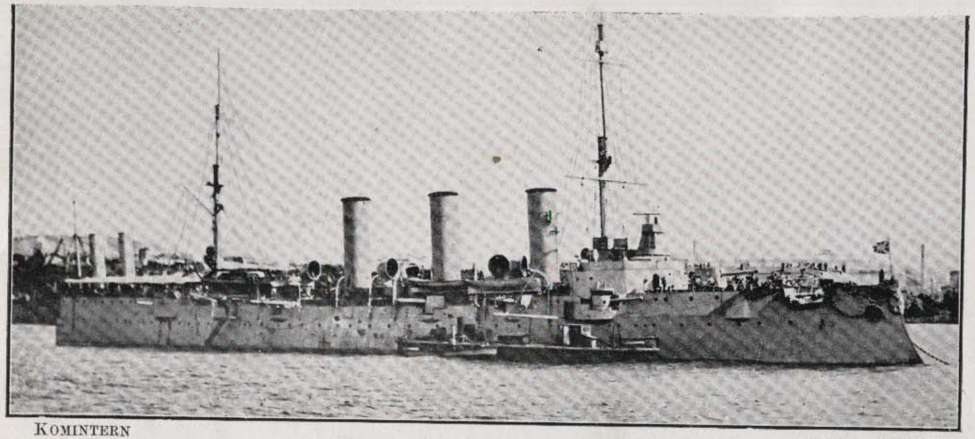
AEG vulcan

Machinery: Brown Curtis or Parsons turbines. Boilers: 13 Yarrow. H.P. 50,000 = 29·5 kts. Coal: 540 tons. Oil: 690 tons. Radius of action: 470 miles at full speed, 3700 at 14 kts.

*General Notes.*—Built under the 1912 Naval Programme and laid down in 1913. Construction was held up for many years, *C. Ukraïna* being the first to be completed in December, 1924, followed by *Profintern* in January, 1925. *Profintern* towed to Leningrad for completion 1918. Proceeded to Black Sea, 1930, staying for repairs at Brest and Naples, where it is reported that her condition was very unsatisfactory and that only minor repairs would be undertaken. Have always been described as having 3 inch armour for full length over main and lower decks, but from inspection it appears that there is no special side armour; apparently the hull is built of thicker plating than usually obtains. Armour has therefore been deleted from above plan and exact protection is uncertain.

CH. UKRAÏNA.

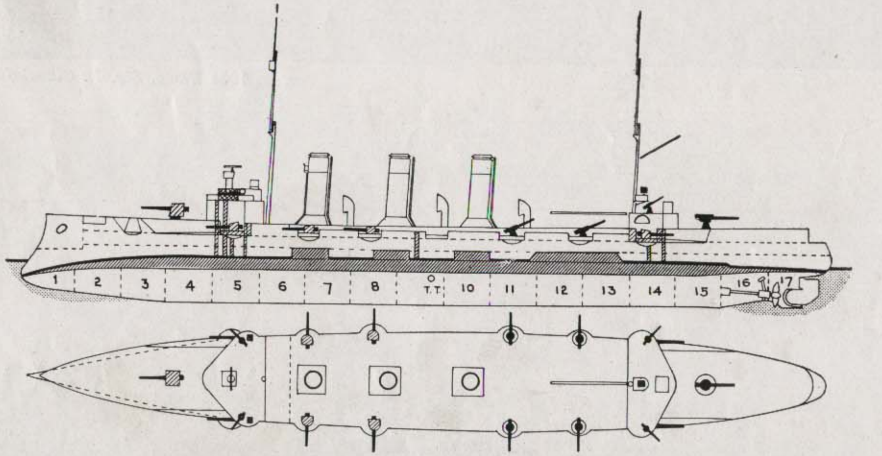
*Added*, 1935.



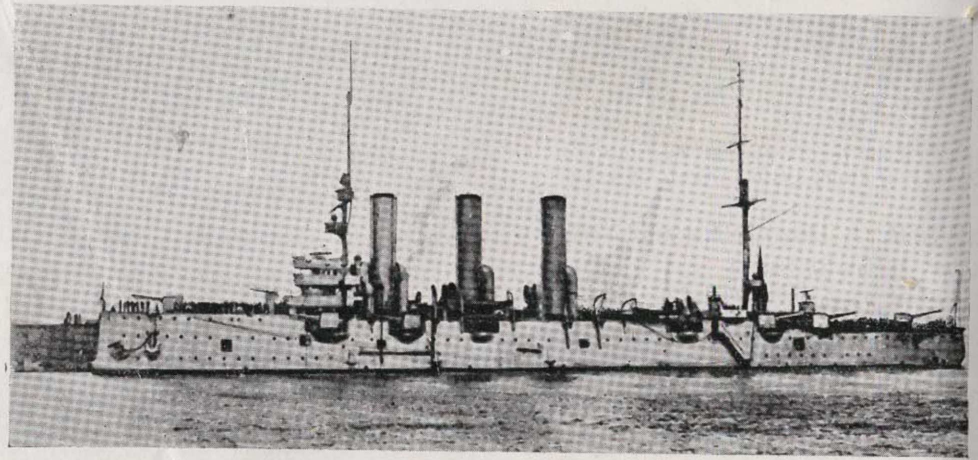
KOMINTERN

Photo added 1925.

(Employed as Seagoing Training Ship.)



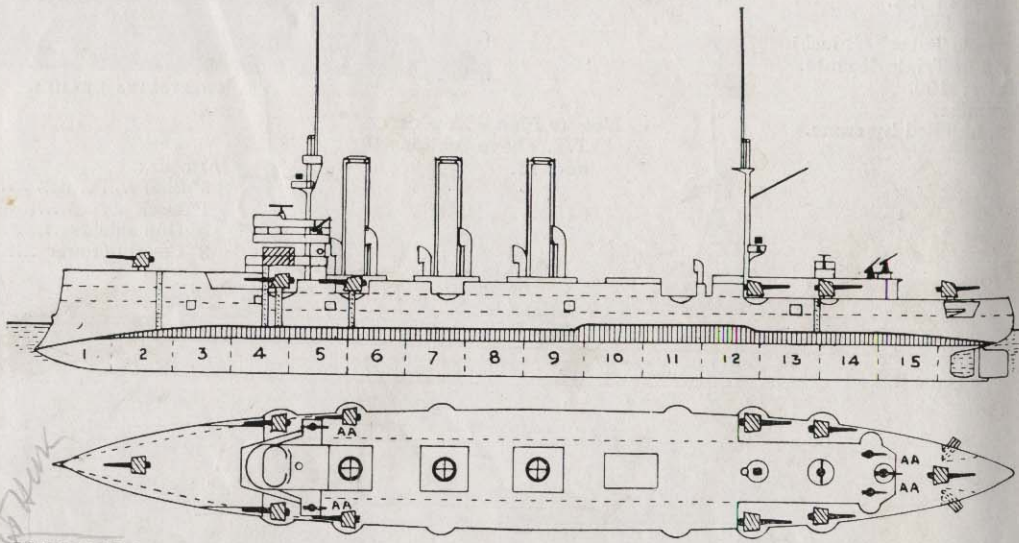
+ **KOMINTERN** (ex-*Pamiat Merkuria*, ex-*Kagul*, June, 1905). 6,338 tons. Dimensions: 436 × 54 × 20½ feet. Complement, 573. Guns: **10**—5.1 inch, **8**—3 inch AA., **2** M.G. Torpedo tubes: **2**—18 inch (*submerged*). Armour: 1″—3″ deck, turrets and casemates. Machinery: Triple expansion. 2 screws. Boilers: 16 Normand. Designed H.P., 19,500=23 kts. Coal: *normal* 700 tons, *maximum* 1,100 tons. Refitted and rearmed. Present best speed under 20 kts. M



AVRORA.

1930 *Photo.*

(At present Seagoing Training Ship.)



**AVRORA** (ex-*S.S.S.R.**, ex-*Avrora*, May, 1900). 5,622 tons (Std.) Complement, 590. Dimensions: 410 (*w.l.*) × 55 × 21¼ feet (*mean draught*). Guns: **10**—5·1 inch, 45 cal., **5**—6 pdr. AA., 2 M.G. Formerly carried 125 mines and **2** *submerged* torpedo tubes (*broadside*). Machinery: M 3 sets horizontal 3-cylinder. Designed H.P. 11,600=20 kts. 3 screws. Boilers: 24 Belleville. Coal: *normal*, 960 tons; *maximum*, 970 tons. Complement, 573. Laid down Oct. 31st, 1896; completed 1903. Still in nominally effective state, but speed reduced to 17 kts. Sister ship *Diana* has been sold for scrap.

*These initials stand for *Soyus Sovietskii Sozialistizeskii Respublik*, meaning "Union of Soviet Socialist Republics."

(*Note to Plan.*—Uncertain whether large ports at stern are for mine-laying or torpedo tubes, but the latter is reported.)

## Cruiser-Mine Layer.

(*For appearance, see silhouette.*)

### MARTI (1935). [illegible]

Displacement: 3,500 tons. Complement:
Length: Beam: Draught:

Guns:
**4**—5·1 inch.
**4**—37 mm. AA.

Armour:
2″ Deck.

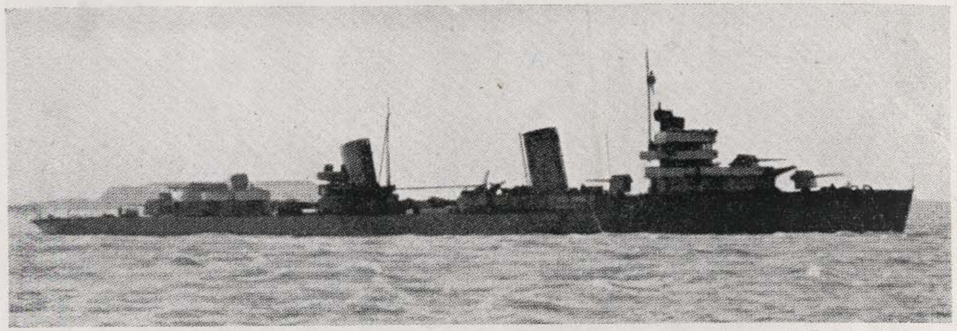
Mines:
300.

Machinery: Geared turbines. Speed: 25 kts. Oil fuel.

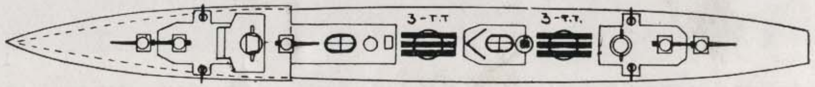
*Note.*—Though this ship has been reported as ex-yacht *Shtandart*, it appears more likely that she is an entirely new ship, built at Leningrad.

## 20+5 Destroyers (*Eskadrenyi Minonosetz*).

### 8 Leningrad Class.



1937, *courtesy H. C. Bywater, Esq.*

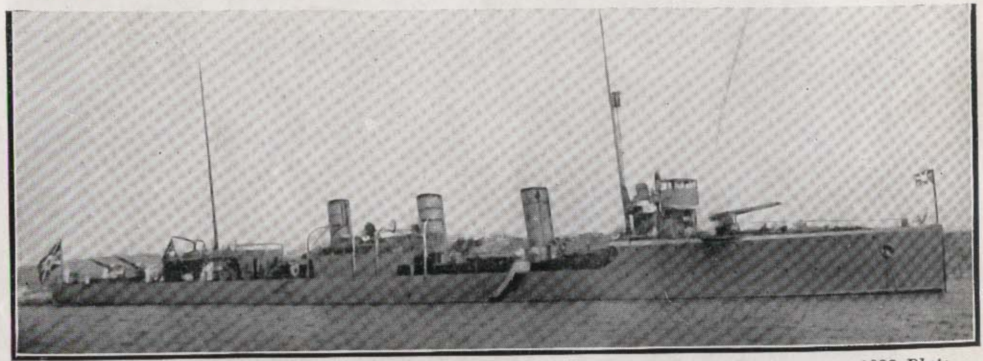


1937.

[illegible]

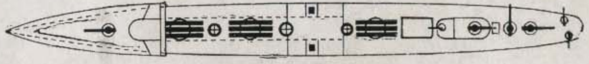
8 *French* type: **Leningrad** (1935), **Minsk** (1935), **Kharkov** (1936), **Tashkend** (Nov 21, 1937) and 4 building. All built at Leningrad, except *Tashkend*, by Oderi-Terni-Orlando, Leghorn, Displacement: 2,900 tons. (3,500 full load). Dimensions: 459⅓ × 40 × 14 feet. Guns: **5**—5·1 inch, 4—37 mm. AA., **4** D.C.T. Tubes: **6**—21 inch (tripled). Fitted for minelaying. Machinery: Geared turbines. S.H.P.: 70,000 = 35 kts. Watertube boilers of 3-drum type. Oil fuel.

*Note.*—*Leningrad* reported to have made 36·3 kts. on trials. These ships resemble French *contretorpilleurs* of recent design, and the construction of those built in Russia is understood to have been supervised by French Technical experts.

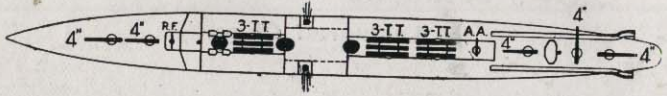


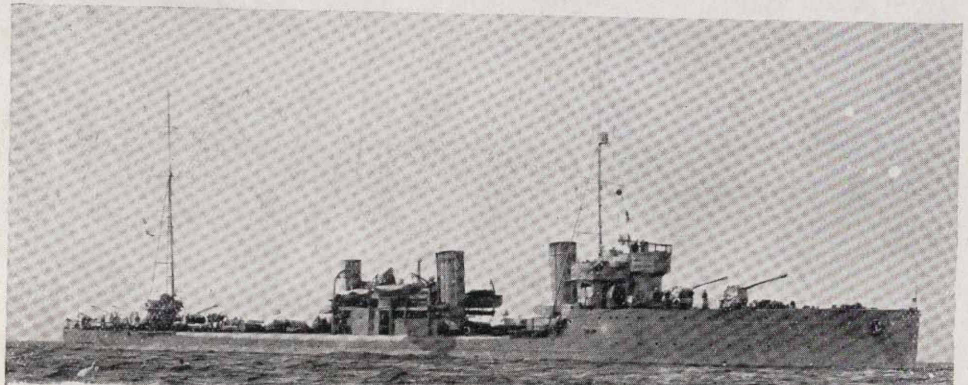
1928 *Photo.*

**Frunze** (ex-*Bistri*, 1915). (Refitted and rearmed 1928.) 1,300 tons. Complement, 156. Dimensions: 321½ × 30½ × 12½ feet. Armament: **4**—3·9 inch, **1**—3 inch AA., **1** M.G., **9**—18 inch tubes, 80 mines Boilers: 4 Thornycroft. 2 screws. Oil: 350 tons. H.P.: 23,000 = 25 kts.



## 2 Karl Marx Class.



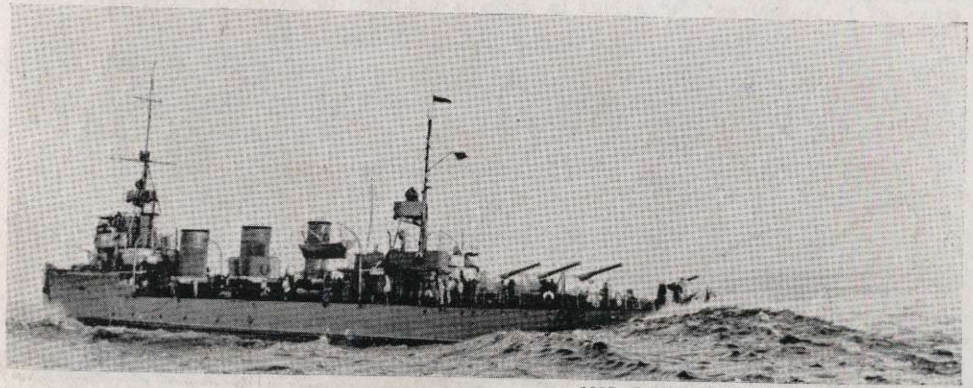


KARL MARX.

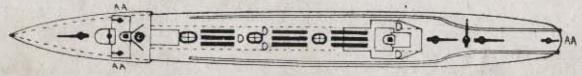
1932.

2 *Reval Shipbuilding Co.*: **Karl Marx** (ex-*Isyaslav*), **Kalinin** (ex-*Priamislav*) (1914). 1354 tons. Dimensions: 344½ × 31¼ × 9⅔ feet. Designed H.P.: 32,700 = 33 kts. (Trials reported to have given 32 kts.) Parsons turbines and Normand boilers. Guns: **5**—3·9 inch, **1**—3 inch AA., **2** M.G. *Kalinin* only **4**—3·9 inch. Torpedo tubes: **6**—21 inch in *K. Marx*, **9**—18 inch in *Kalinin*. 60 mines. Machinery: turbines. H.P.: 28,000 = 28 kts. Oil: 450 tons. Complement: 167.

*Notes.*—These vessels were built to the designs of Chantiers et Ateliers Augustin Normand, Le Havre and laid down in 1912. *K. Marx* completed 1923, but *Kalinin* was not completed till 1927.



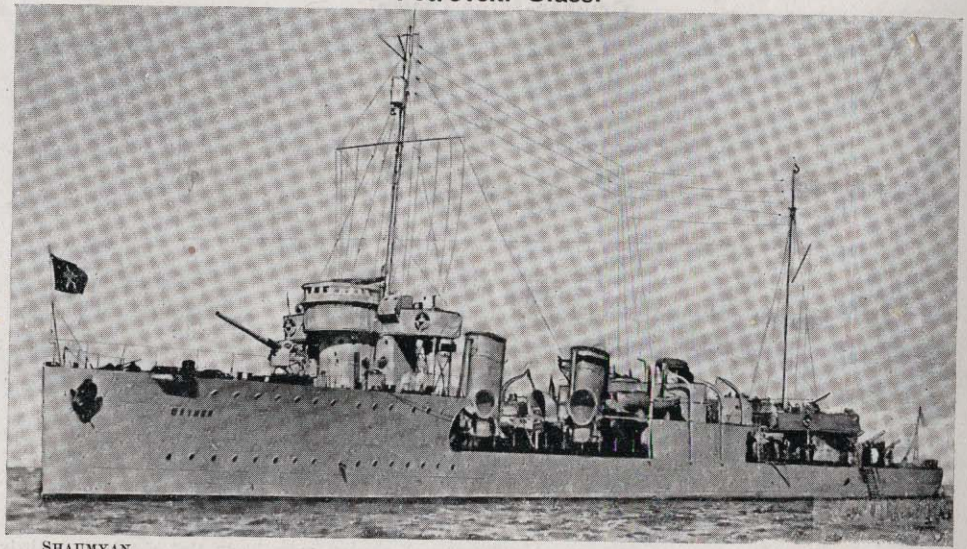
1937, *Commander D. C. Lang, R.N. (retd.)*.



**Yakov Sverdlov** (ex-*Novik*). Built 1910–12. Rebuilt and re-armed 1931. Displacement: 1,271 tons. Dimensions: 336 × 31 × 9½ feet. 3 A.E.G. turbines. S.H.P.: 36,500 = 32 kts. 6 Vulcan boilers. Oil: 400 tons. Complement: 112. Guns: **4**—3·9 inch, **1**—3 inch AA., **1** M.G. **9**—18 inch tubes.

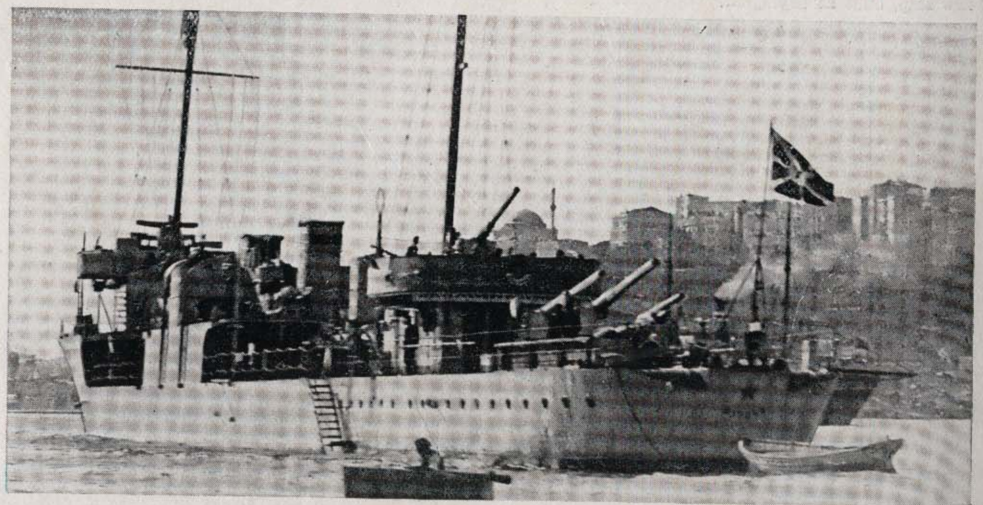
*Note.*—Recent alterations include enlarged bridge, tripod masts, extension of forecastle, and shifting of after-superstructure, and main mast. Employed on cruiser duties. Trials, 1915 = 35·7 kts. Reported to have been renamed, 1937.

## 4 Petrovski Class.

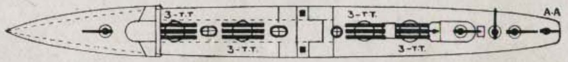


SHAUMYAN.

1935, *J. Weinberg.*

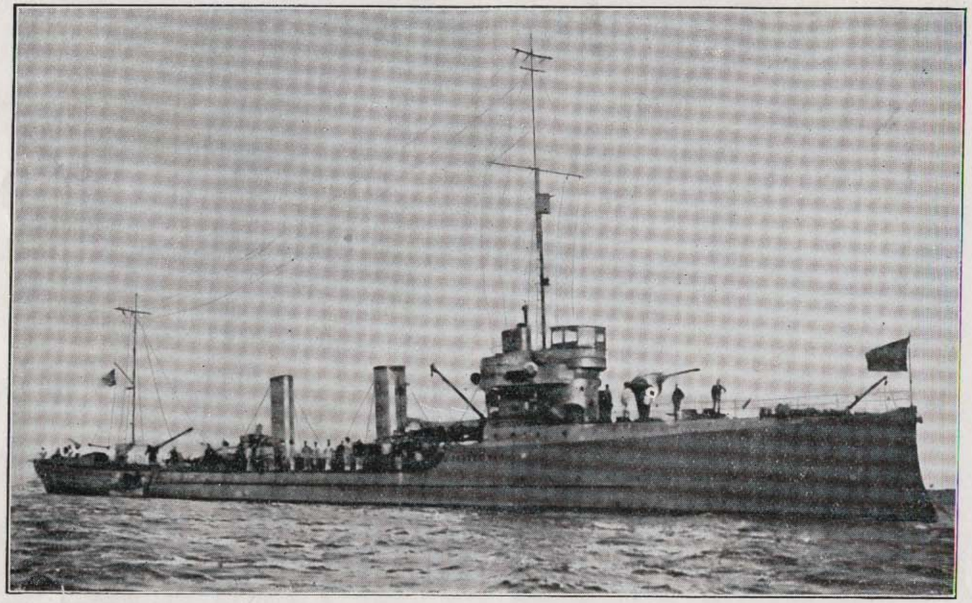


1935, *J. Weinberg.*



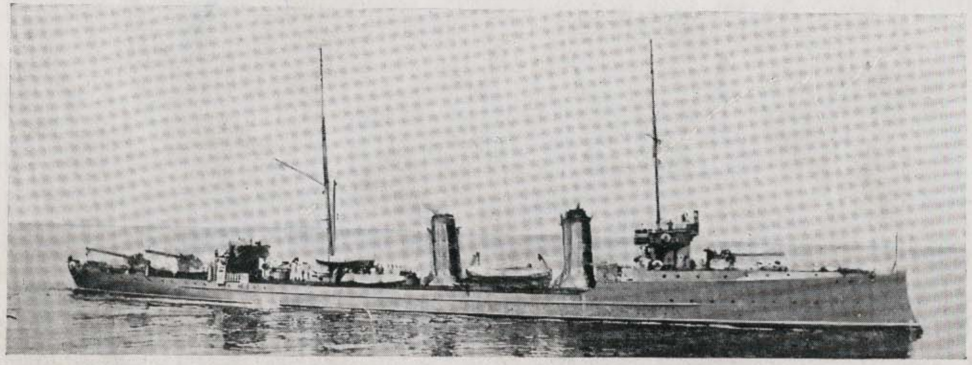
4 boats: **Felix Dzerzhinski** (ex-*Kaliakria*, 1918), **Nezamojnik** (ex-*Zante*, 1917), **Petrovski** (ex-*Korfu*, 1917), **Shaumyan** (e -*Levkos*, 1917). All built at Nikolaieff. 1,323 tons (*Petrovski*, 1,308 tons). Dimensions: 303½ × 29½ × 9 feet. Armament: **4**—3·9 inch, **1**—3 inch AA., **1**—37 mm. AA., **12**—18 inch tubes, in triple mountings. Originally designed to carry 80 mines of pre-war pattern, but will now have 45 of heavier type. Turbine engines. Oil fuel only: 390 tons. S.H.P.: 29,000 = 33 kts. (Actual speed considerably less.) Complement: 161. *Nezamojnik* not completed till 1923, and *Petrovski* and *Shaumyan* in 1925. *Dzerzhinski* sunk in 1918, but salved in 1925 and refitted.

## 3 Markin class.



BABINSKI RABOTCHI. *Photo, Dmitri Novik (added 1929).*

3 "*Markin*" class, named ***Alfater*** (ex-*Turkmenetz-Starropolski*). ***Markin*** (ex-*Ukraina*) ***Babinski Rabotchi*** (ex-*Voiskovoi*) (all 1904). Built by Lange's Yard, Riga. 580 tons. Dimensions: 240 × 23¾ × 7½ feet. Designed H.P. 6200=25 kts. Boilers: 4 Normand. Coal: 50 tons *normal*, 135 tons *full load*. Complement, 88-85. Armament: **3**—3·9 inch, **1**—1 pdr., **2** M.G., and **2**—18 inch tubes. Carry 16 mines.
Present Speeds: *Markin*, 23 kts. *Alfater*, 20 kts. *Babinski Rabotchi* probably less. All three are in Caspian Sea.

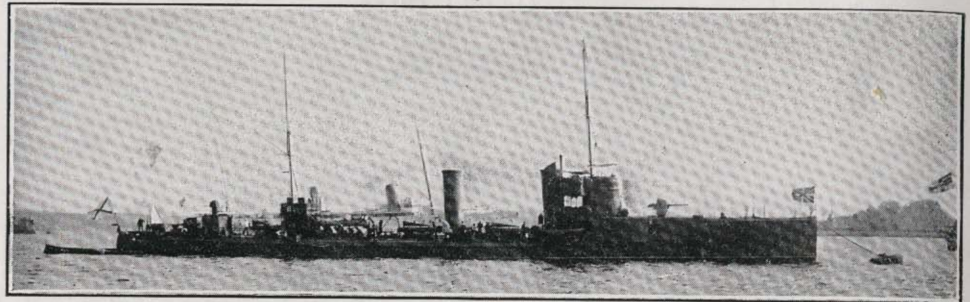


KONSTRUKTOR. 1932 *Photo.*

?

1 *Kondratenko* type: ***Konstruktor*** (ex-*Sibirski-Strelok*, Helsinki, 1906). 625 tons. Guns: **3**—3·9 inch, **2**—4 pdr. AA. Tubes: **1**—18 inch. 50 mines. H.P. 7,300 = 25 kts. Coal: 215 tons. Complement: 101.
(Serving as Leader of Mine Layers.)

## 2 Zhelesniakov class. ?



2 *Zhelesniakov* class, named ***Sladkov*** (ex-*Vsadnik*). (Krupp 1905), ***Zhelesniakov*** (ex-*Amuretz*. Riga, 1905), 710 tons. Dimensions: first ship, 233 × 24·2 × 7·5 feet, second, 233 × 23·6 × 7·8 feet. Designed H.P.: 6,500 and 6,200 respectively = 25 kts. Coal: 205 tons. Complement: 105. Guns: **3**—3·9 inch, **1**—3 pdr., **1**—1 pdr. AA. **4** M.G. Tubes: **3**—18 inch. Carry 25 mines.

*Note.*—Present best speeds: 22–24 kts.

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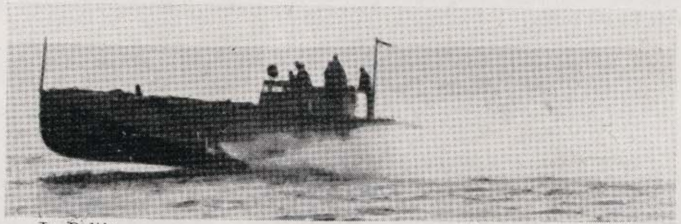
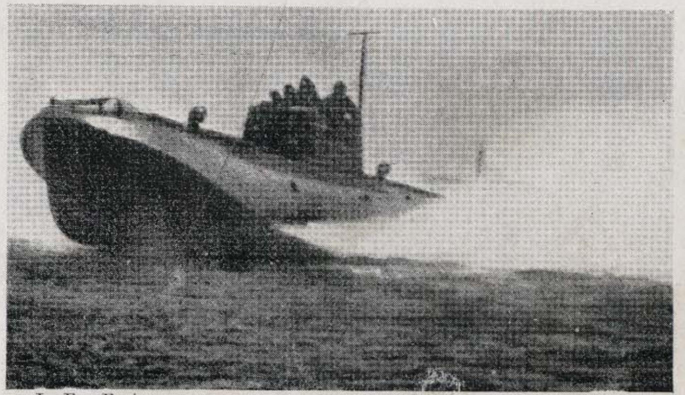
## Torpedo Boats—Motor Type



In Baltic. 1937.



In Far East. 1937.

Total number uncertain, but is at least 130. Displacement varies from 6 to 35 tons. Majority are of Italian M.A.S. type. Usual armament, 2 torpedoes. Machinery of Italian design. Distributed between Baltic, Black Sea and Far East.

Names reported from the Black Sea are:

***Beshumni, Besposhadni, Bestrashni, Bezupretchni, Biedovi, Bodri, Buini, Pilki, Pritki, Pronzitelni, Protchni, Serditi, Silni, Smieli, Zavietni, Zhivuchi, Zorki.***

Distinctive numbers are painted on C.T.'s of all those observed.

## 112 + *37* (*building*) Submarines (*Podvodniya Lodki.*)

*Note.*—Above total is only approximate, and may well be less than the real one, as list below does not pretend to be exhaustive. At Vladivostok, in addition to a large number of coastal submarines of the 200-ton type described below, 17 units of *Chuka* and/or *Dekabrist* class were observed, bearing numerals between 100 and 127. Possibly they are only numbered, not named. Many of these submarines are believed to be minelayers.

### 7 (or more) Pravda Class.

*Photo wanted. For appearance, see silhouette.*

7 boats: **Pravda** (*P* 1), **Sviezda** (*P* 2), **Iskra** (*P* 3), and at least 4 more. Displacement: 1,200/1,800 tons. Dimensions unknown. Guns: 2—3 inch, 1—37 mm. AA. Torpedo tubes: 8—21 inch.

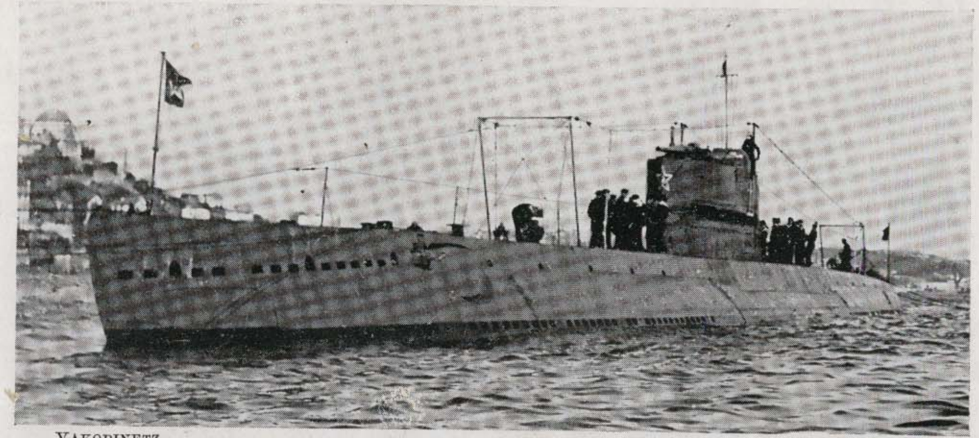
### 8 Garibaldietz Class.

*Photo wanted.*

8 *Adriatico design* boats: **Garibaldietz** (*B* 4), **Chartist** (*B* 5), **Karbonari** (*B* 6). and 5 more. Completed 1933–35. Displacement: 1,039/1,335 tons. Guns: 1—4 inch, 1 M.G. Tubes: 6—21 inch. Speed: 14/8·5 kts. In Black Sea.

### 5 Yakobinetz Class.

D-4-D-6

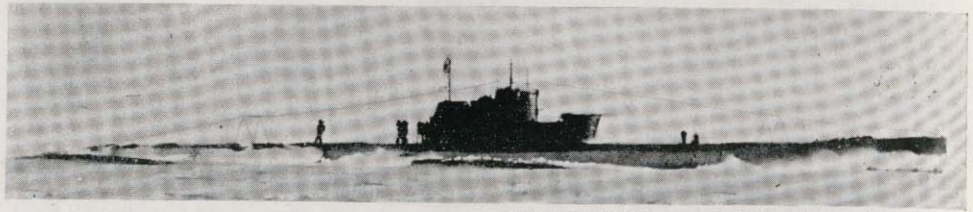


YAKOBINETZ. 1935, *J. Weinberg.*

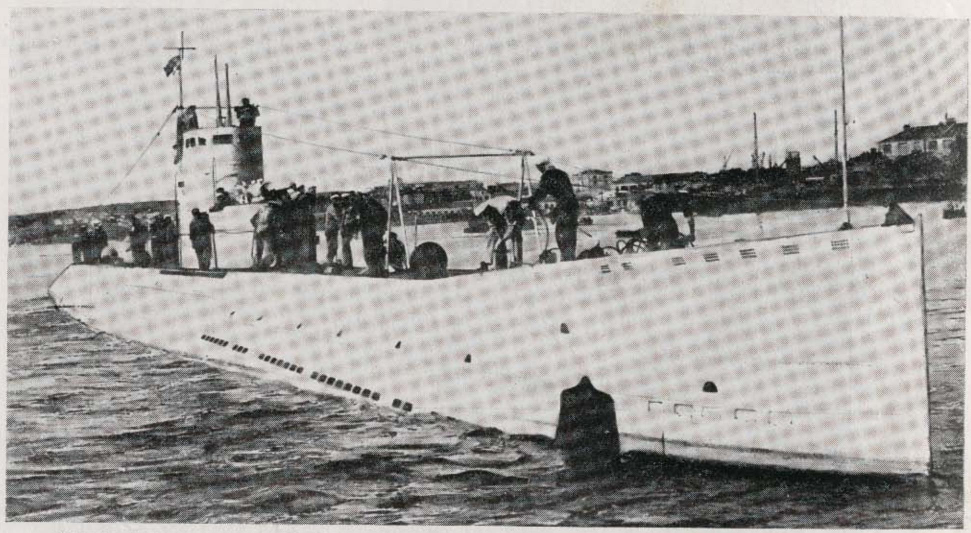
5 boats: **Yakobinetz** (No. 11), **Revolutioner** (No. 12), **Spartakovetz** (No. 13), and 2 others. Completed 1931. Displacement: 959/1,370. tons. Dimensions: 284 × 23½ × 16½ feet. Guns: 1—4 inch AA., 1—37 mm. AA., 2 M.G. Torpedo Tubes: 8—21 inch. H.P. 2,600/1,200 = 15/8 kts. In Black Sea.

### 22 Dekabrist Class.

Тип А

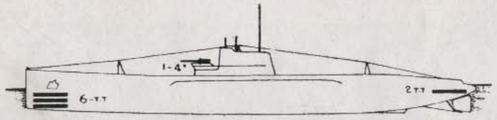


1937, *courtesy* "Taschenbuch der Kriegsflotten"



DEKABRIST *type.* 1935.

22 boats: **Dekabrist** (*B* 1), **Narodovoletz** (*B* 2), **Krasnogvardietz** (*B* 3), **Komsomolka**, and at least 18 others. Earlier units built at Baltic Yard, Leningrad 1929–30. Displacement: 896/1,318 tons. Complement: 44. Dimensions 279 × 23 × 16½ feet. Guns: 1—4 inch AA., 1—37 mm. AA., 2 M.G. Torpedo tubes: 8—21 inch (6 bow, 2 stern). H.P.: 2,500/1,200 = 15/8 kts. *Surface* radius: 7,000 at 9 kts. **B 3** sank during exercises in Gulf of Finland, July, 1935; reported to have been salved. Another vessel of this type reported lost on trials.

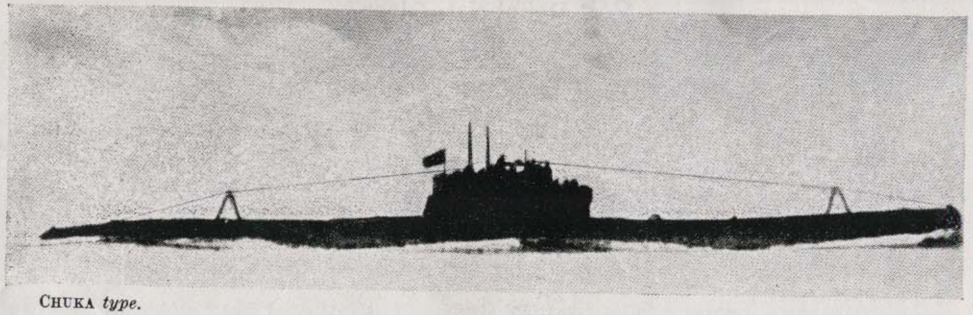


### 24 "Lineiniya Lodki" Type.

*Photo wanted. Appearance as silhouette.*

24 boats: Names not known. Displacement: about 500 tons. *Surface* speed: 19 kts. (Many of this class still under construction.) Reported to be designed to accompany capital ships, hence the description of the type as *Lineinlya Lodki*, meaning fleet submarines.

## 12 Chuka Class.



CHUKA *type.*

12 (or more) boats: **Chuka, Okun, Yorch** and 9 others. Over 600 tons displacement. Guns: 1—4 inch AA. Reported to be minelayers.

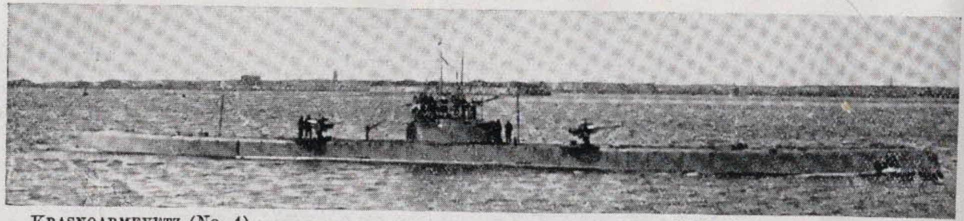
## 40 "Malodki" Type.

*Photo wanted.*
*(Appearance as Silhouette.)*

*About* 40 boats: Of a small design, about 200 tons *surface* displacement. 2 Torpedo tubes. "Malodki" is an abbreviation of *Maliya Lodki*, meaning small submarines.

The following is a list of names that have been reported without type being ascertained: **Blücher, Budenni, Orlov, Komsomeletz, Sviezdochka, Bezbojnik, Frunzovetz, Leninetz, Sverdlovetz, Stalinetz, Bezvirnik, Mudovetz, Profilski Ukraina.** Some of these are reported as of considerable size, others as of a smaller design. Doubtless all belong to one or other of the various types enumerated above; but there are at least 20 more under construction, design of which has not been ascertained.

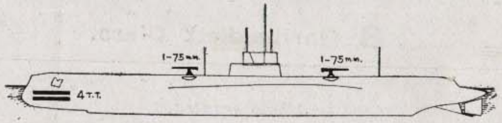
## 5 Bolshevik Class.

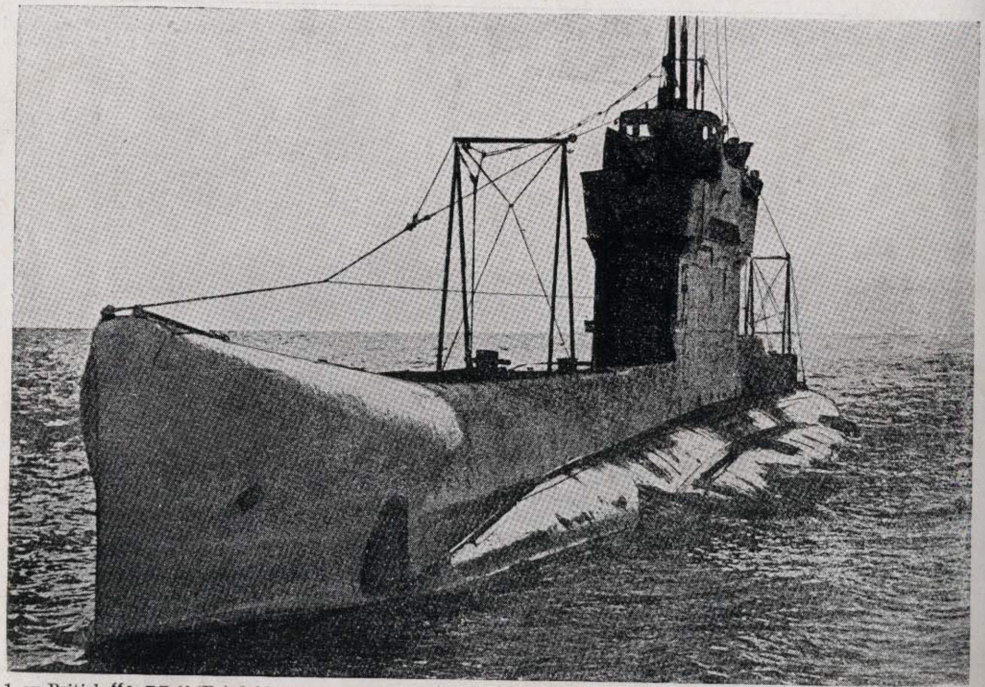


KRASNOARMEYETZ (No. 4). 1930, *Comm. R. Steen Steensen.*

5 *Bubnov* type: **Bolshevik** (ex-*Ryss*), **Komissar** (ex-*Pantera*), **Kommunar** (ex-*Tigr*), **Krasnoflotetz** ex-*Yaguar*), **Krasnoarmeyetz** (ex-*Leopard*). All built by Nobel & Lessner, Reval, 1915–16. Displacement: 650/784 tons. Dimensions: 223 × 14¾ × 12¾ feet. Guns: 1—3 inch, 1 M.G. Tubes: 4—18 inch. Dropping gears: 8. H.P.: 500/900 or 2,400/900. Speed: 10/9 or 18/10 kts.

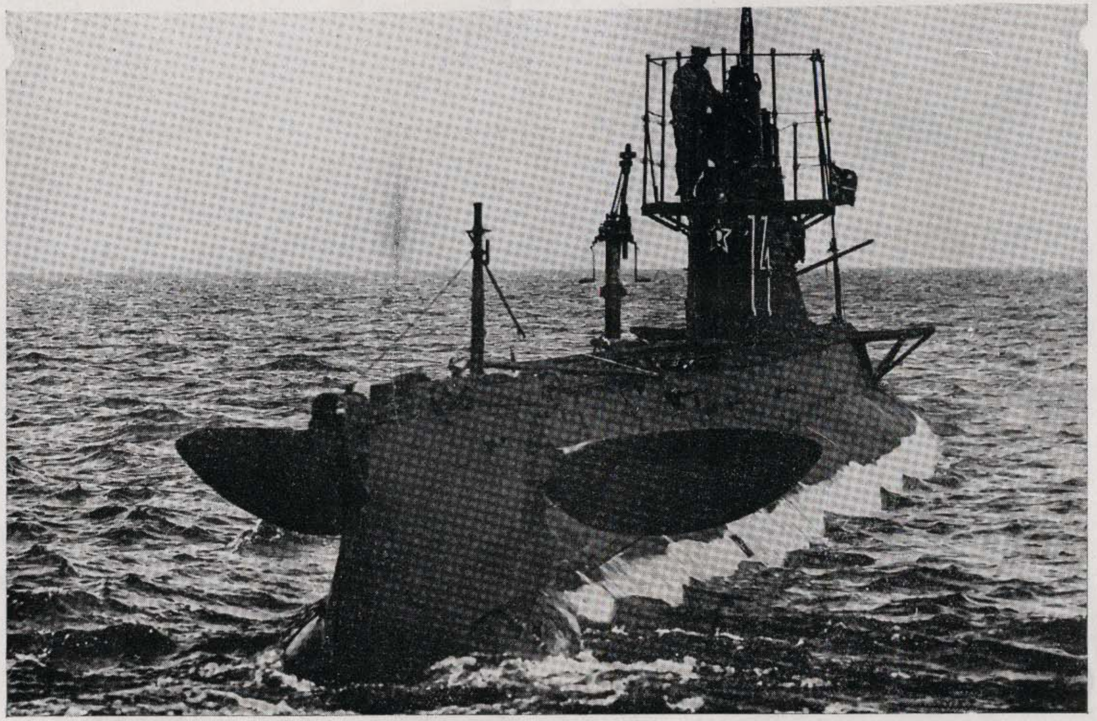
*Note.—Rabotchi* (No. 9) was sunk in the Baltic May 26, 1931. Since raised and scrapped. *Tovarich* (No. 3) sunk by collision with *Marat* in August, 1935. All this class used only for training.





1 ex-British **"L.55."** (Fairfield, 1918). Displacement: 870/1,139 tons. Dimensions: 220½ (*p.p.*), 235 (*o.a.*) × 23½ × 13⅕ feet. Guns: 2—3 inch, 1 M.G. Tubes: 6—21 inch, all in bows. Machinery: 2 sets 12-cylinder solid injection. Vickers type Diesel engines. Oil: 78 tons. B.H.P.: 2,400/1,600 = 17·5/10·5 kts. Lost in the Baltic, 1919, salved 1928, repaired, and put into service October 9 1931. Sunk in same month, but now again in service for training purposes. Present speeds not above 14/9 kts.

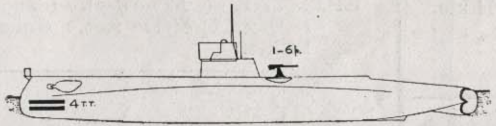
## 4 Metallist Class.



1930 *Photo.*

(All boats now carry identification numbers, as above).

4 *Electric Boat Co.* design: ***Politrabotnik*** (ex-*AG* 26), 1916–1924; ***Metallist*** (ex-*AG* 21), 1916-1931; ***Kommunist*** (ex-*AG* 24), 1916–1922; ***Marxist*** (ex-*Kamenev*, ex-*AG* 25), 1916–1922. Displacement: 375 × 467 tons. H.P.: 480 = 12 kts. *on surface*, 320 = 8 kts. *submerged.* Guns: **1**—6 pdr., **4**—18 inch tubes. Dimensions: 150¼ × 15¾ × 15¼ feet. Used for training in Black Sea. Dates given are those of laying down and completion.



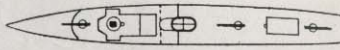
## Patrol Vessels.

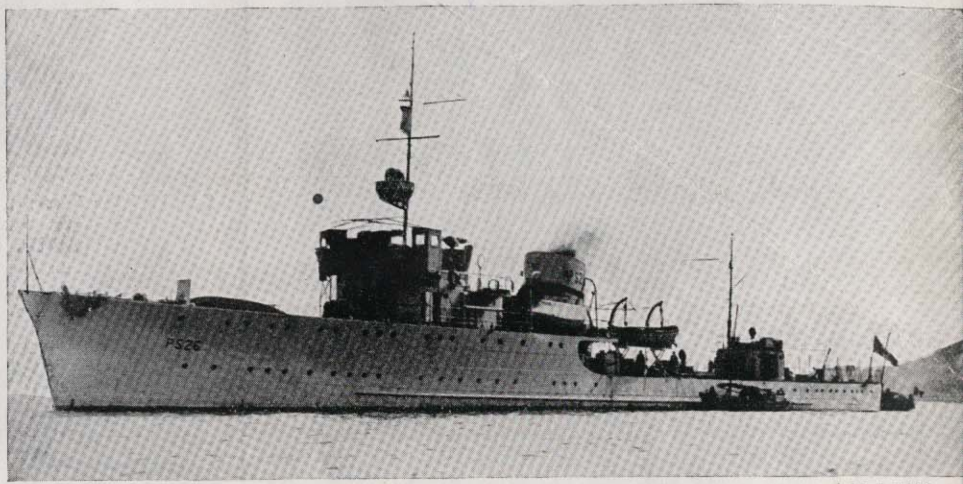
(Appearance as Silhouette.)

**P.S.** 1—6 (1935–36). Displacement: 500 tons. Dimensions: not reported. Guns: **1**—3·9 inch, **2**—37 mm. AA. Mines probably carried. Machinery: Diesel. 2 shafts. Speed: 16 kts.

*Note.*—Initials *P.S.* stand for *Pogranitchni Storoshevoi,* meaning Frontier Patrol.

## Patrol Vessels.—*continued.*





Added 1935.

2 *Ansaldo* type: **P.S.** 8 (Aug. 19, 1934), **P.S.** 26 (Sept. 18, 1934). Built by Ansaldo. *Standard* displacement: 810 tons. Complement: 120. Dimensions: 249⅓ (*p.p.*), 262½ (*o.a.*) × 27¼ × 16¾ feet. Guns: **3**—3·9 inch, **4**—40 mm. AA. Fitted for minelaying. Machinery: 3 Fiat and Tosi Diesels respectively. 3 shafts. H.P.: 4,800 = 20 kts. (Trials: H.P.: 5,400 = 21 kts.) Fuel: 44 tons. (In Far East.)

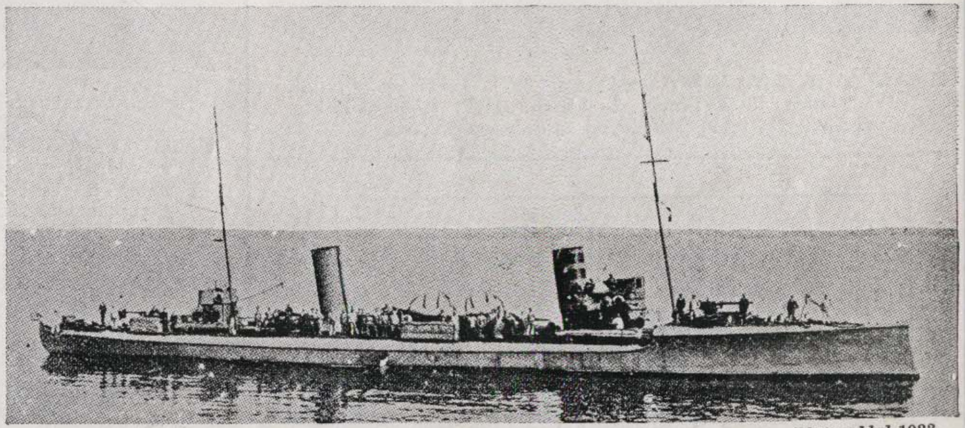
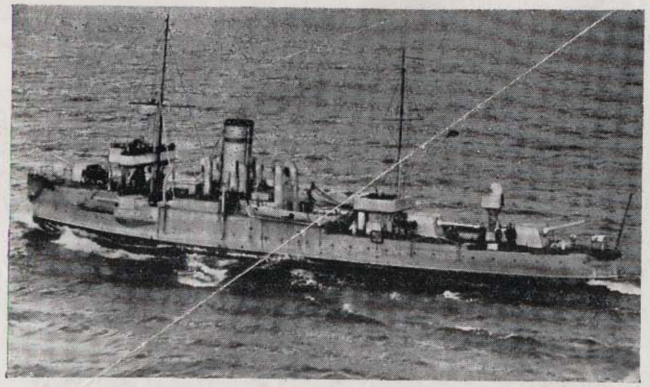


*Photo added* 1933.

5 *Schichau* type (Old T.B. with tubes removed):

***Martynov*** (ex-*Vnushitelni*). ***Artemiev*** (ex-*Vinoslivi*), ***Roshal*** (ex-*Ing. Mech. Dmitriev*), ***Shemchushn*** (ex-*Ing. Mech. Sveriev*), ***Ossoaviakhim*** (ex-*Vnimatelni*). All built by Schichau, 1905.
375 tons. H.P.: 6,200 = 28 kts. (15–20 kts. present speed.)
Coal: 125 tons. Complement: 69.
Guns: **2**—3 inch
Carry 15 min

## Old Gunboats.



1934 *Photo.*

**KRASNOYE ZNAMYA** (ex-*Khrabri*, 1895). 1740 tons. Compl. 197. Guns: **5**—5·1 inch, **1**—3 inch, **3**—3 pdr. Armour: 3″ vert. side amidships, 3″ vert. side aft. H.P. 2,000 = 14 kts. Coal: 160 tons. Built by Burmeister & Wain, Copenhagen.

*Note.*—Re-fitted and re-armed for service as Gunnery School Tender, 1916.

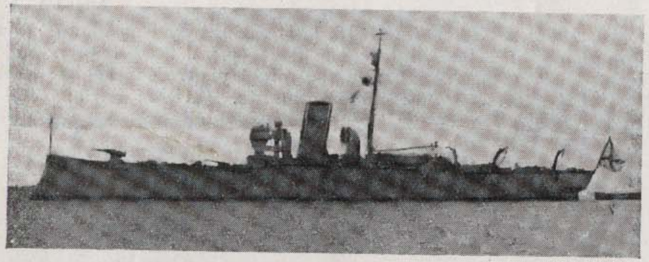
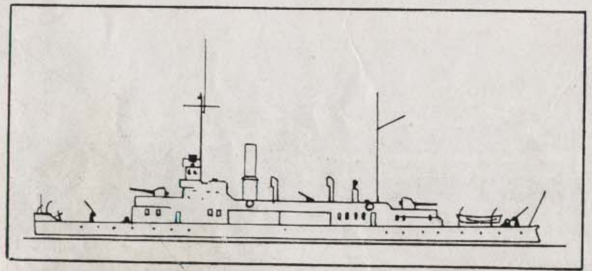


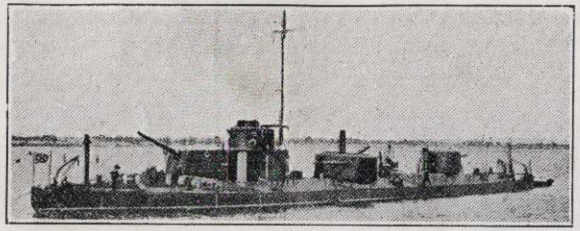
*Photo added*, 1922.

**ZNAMYA SOZIALISMA** (ex-*Teretz*, 1887). 1295 tons. Compl. 135. Guns: **3**—5·1 inch, **2**—3 inch. H.P. 1,500 = 11 kts. Coal: 220–237 tons. Employed as Salvage Tender.

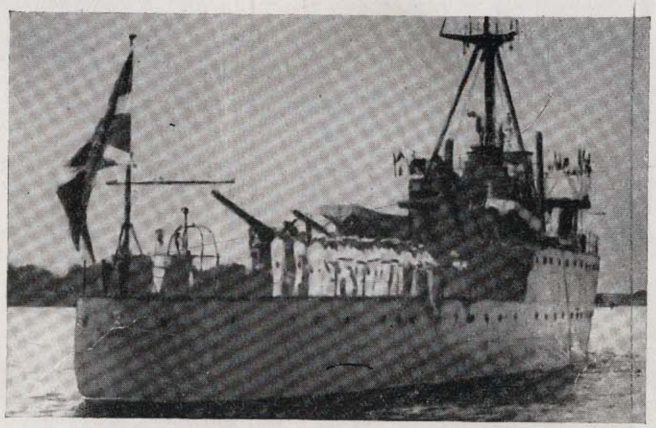


**KRASNOYE ZNAMYA** (ex-*Sibiriak*), **BIEDNOTA** (ex-*Vogul*) **PROLETARI** (ex-*Buriat*), **RABOTCHI** (ex-*Kalmuk*), (1907) 190 tons. Guns: **2**—4·7 inch, **2** M.G. H.P. 500 = 11 kts. Fuel: 145 tons. (Amur Flotilla.)

## River Gunboats—*continued.*



**LENIN** (ex *Shtorm*), **SUN-YAT-SEN** (ex-*Shkval*), **KRASNI-VOSTOK** (ex-*Viyuga*), **SVERDLOV** (ex-*Uragan*), **CHICHERIN** (ex-*Vikhr*) (1910). 950 tons. Complement: 104. Guns: **2**—6 inch, **2**—4·7 inch, **6** M.G. Armour: 4½ inch turrets. Machinery: Nobel-Lessner Diesel engines. H.P.: 1,000 = 11 kts. (Amur Flotilla.)



KRASNI-AZARBAIJAN.

1931 *Photo.*

**KRASNI - AZARBAIJAN** (ex-*Trotsky*, ex-*Ardagan*). **LENIN** (ex-*Kars*). (Both 1909). 630 tons. Guns: **2**—4·7 inch, **2**—4 inch, **4** M.G. Diesel: 1,000 H.P. = 11 kts. Complement, 126. Radius = 2270 miles at 10 kts.

(Both in Caspian Sea.)

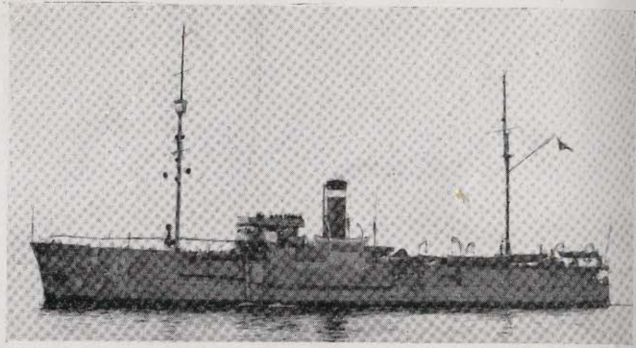
## Surveying Vessel.

(*Appearance as Silhouette.*)

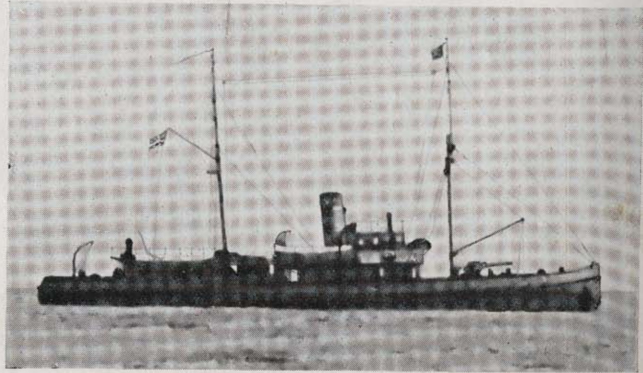
**ASTRONOM.** Particulars wanted.

## Minelayers.

*Note.*—Many Torpedo Craft are equipped as minelayers, as detailed on an earlier page. Old yacht *Shtandart* is also reporte to be fitting out for this service.



**25 OKTIABRYA** (*ex-Narova*, *ex-General Admiral*, 1873 Displacement: 4250 tons. Dimensions: 284½ × 48 × 22 fee Guns: **4**—3 inch, **4** M.G. 600 mines. H.P. 4,500 = 9 kts. (Mine laying Training Ship.)



1932 *photo.*

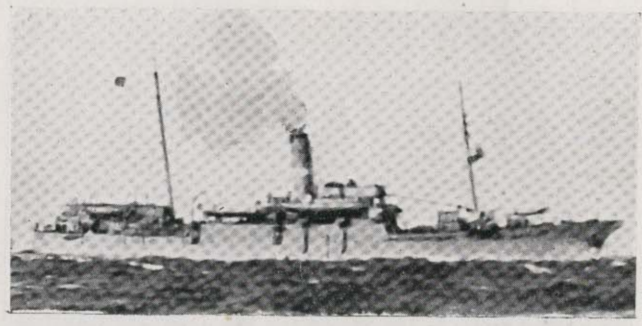
**SPARTAK** (ex-*Tsaritsa*). (Sandvikens, 1913). Dimensions 132¾ × 21⅓ × 11 feet. Guns: **1**—3 inch. H.P.: 740 = 12 kts.

*Photo wanted.*
*For appearance, see silhouette.*

**KRASNAYA ABKHASIA, KRASNI AJARISTAN, KRASNAYA GRUSIA, KRASNI KRIM** (1916). Displacement: 1,100 tons. Guns: **2**—5·1 inch, **2**—3 inch AA., **2** M.G. (Some reported to mount **3**—5·1 inch.) 24 mines carried. H.P.: 640 = 9 kts.

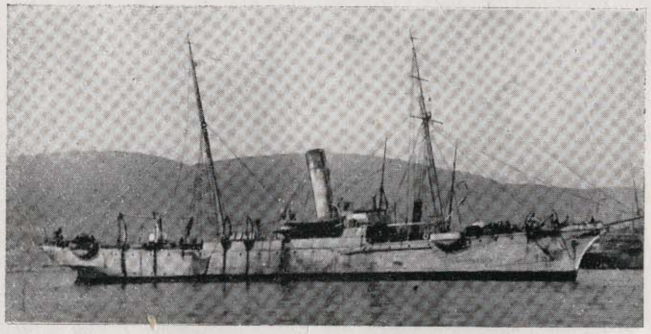
**DOZORNI, RAZVYEDCHIK** (1904). 100 tons. Guns 1—37 mm., 1 M.G. Speed: 16 kts.

## Minelayers.—*continued.*

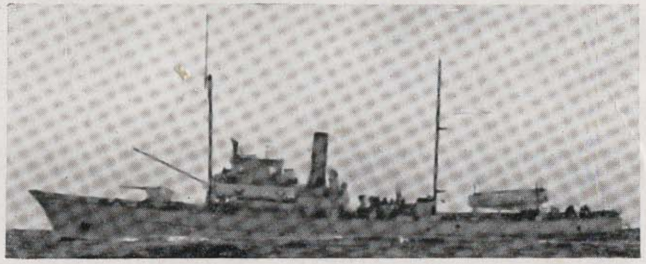


1932 *Photo.*

**DEVIATOË YANVARYA** (ex-*Volga,* 1905). 1711 tons. Dimensions: 229 × 45 × 13 feet. Complement, 266. H.P. 1600 = 13 kts. Babcock boilers. Armament: 4—3 inch. Carries 236 mines. Coal: 160 tons. Present best speed, 10 kts.



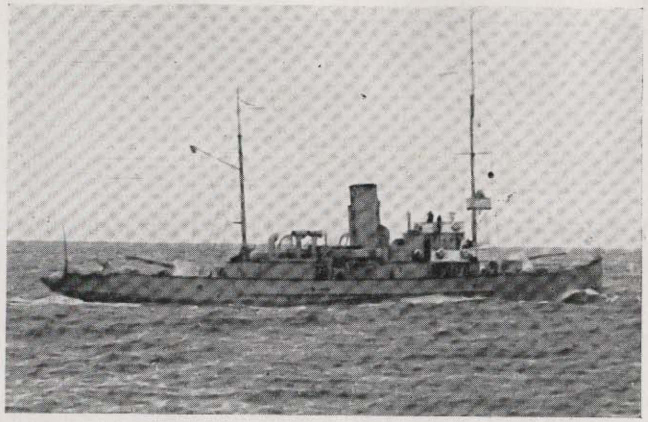
**PERVOË MAYA** (ex-*Dunai*, 1891). 1620 tons. Complement, 234. Guns: 3—3 inch, 2 M.G. H.P.: 1,500 = 13 kts. Coal: 130 tons. Carries 250 mines. Present efficiency questionable.



1932 *Photo.*

**YAUSSA, BERESINA, KUBAN** (1916–17). 1165 tons. Guns: 2—4 inch, 2 M.G. 90 mines. H.P. 500 = 10 kts.

## Minelayers.—*continued.*

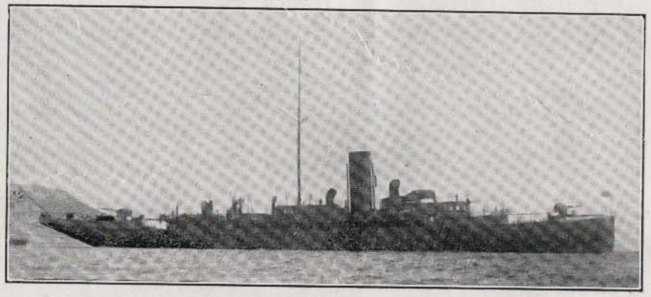


PIONIR. 1932 *Photo.*

**PIONIR** (ex-*Korchun*), **KOPCHIK** 400 tons. Dimensions: 154 × 25 × 10 feet. Guns: 2—4 inch, 1 Small AA. 70 mines. H.P.: 1,150 = 14 kts.

**MINIR.** 350 tons. Dimensions: 164 × 23 × 9½ feet. H.P.: 1,000 = 12 kts. Otherwise as *Pionir* type.

## Despatch Vessel.



1924 *Photo, Abrahams, Devonport.*

**VOROVSKY** (ex-*Yaroslavna*, ex-yacht *Lysistrata*, built by Denny, Dumbarton, 1900). 2089 tons (yacht measurement), 1900 tons (registered). Dimensions: 285 (*p.p.*), 319 (*o.a.*) × 40 × 18 feet. Engines: Triple expansion. 2 screws. H.P. 3500 = 18 kts. Guns: 2—4·7 inch., 2—3 pdr., 2 M.G. Complement: 127. (In Far East.)

## Minesweepers.

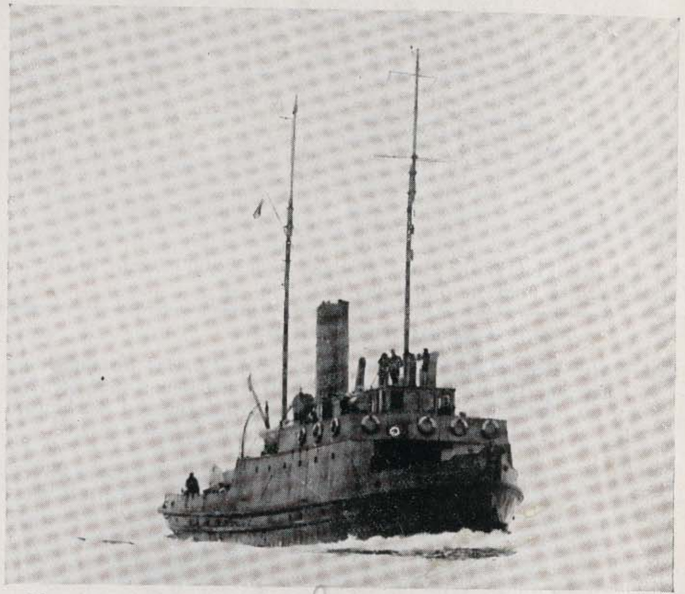
**Nos. I—VI** (1934–35). 400 tons. Guns: 1—3 inch, 1 M.G. Speed, 16 knots.

**M.U. 40—55.** Small craft attached to Mining School. Diesel-driven.

## Minesweepers—*continued.*

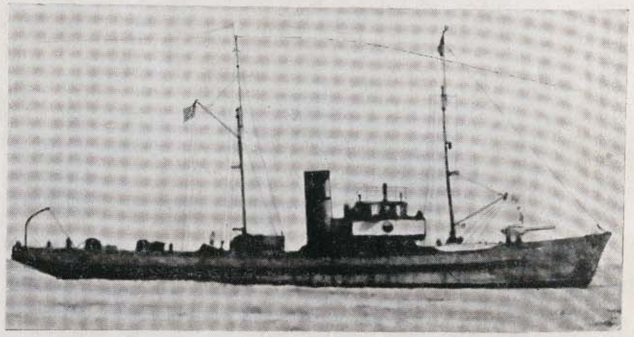
**IJORA** (ex-*Plamya*), **TRETII INTERNATIONAL** (ex-*Patron*). (Middlesbrough, 1913–14). 500 tons. Dimensions: 146 × 24½ × 10 feet. Guns: 2—3 inch. H.P. 650 = 11 kts.

**JALITA** (1926). 359 tons. }
**DOROTEA** (1924). 443 tons. } In Black Sea.
Each armed with 2—3 inch guns.



MIKULA. 1931, (*added* 1936).

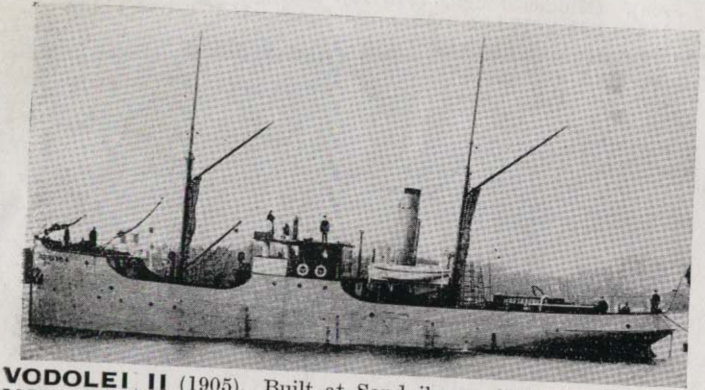
**KLIUZ, UDARNIK, ZMEYA, YAKORI, KAPSIUL, KRAMBOL, MIKULA, NEVOD** (1914–17). 185 tons. Guns: 1—3 inch, 2 M.G. H.P. 550 = 10 kts.



MINREP. 1932 *Photo.*

**ZAPAL, MINREP** (1911). 175 tons. Guns: 1—3 inch. H.P. 300 = 10 kts.

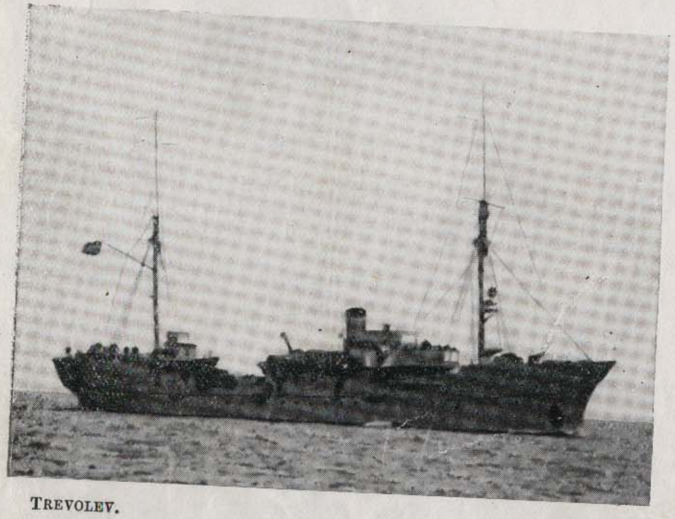
## Water Carriers.



**VODOLEI II** (1905). Built at Sandvikens. 660 tons. 9·5 kts.
**VODOLEI I** (1907). 730 tons. 9·5 kts.

## Training Ships.

**SVIR** (ex-Rotterdam Lloyd liner *Patria*), (K. M. de Schelde, Flushing, 1919). 9,686 tons *gross*. Dimensions : 480½ × 57¼ × 29 feet. Machinery : Single reduction geared turbines. Speed : 15 kts.



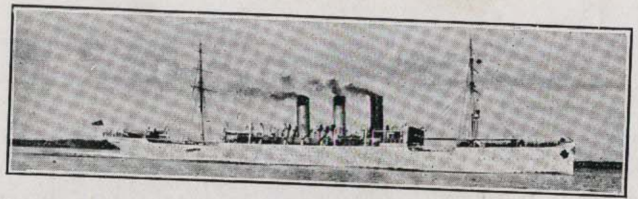
TREVOLEV.

1931 *Photo.*

**TREVOLEV** (ex-*Voin*, 1893, rebuilt 1930). 1280 tons. Guns : 4—3 inch. Speed, 9 kts. (Recently used for survey work.)

**LENINGRADSKI SOVIET** (ex-*Vierny*, 1895, rebuilt 1926). Similar to *Trevolev* in main features. Attached to Navigation School.

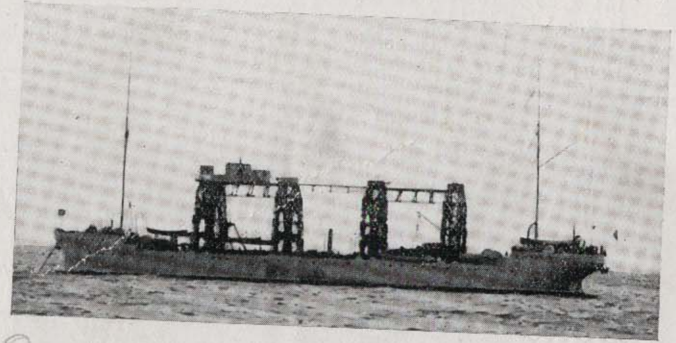
## Training Ships—*continued.*



**KOMSOMOLETZ** (ex-*Okean*, Howaldt, 1902). 11,900 tons. Guns: 4—3 pdr. H.P. 11,000=18 kts. Coal: 1600 tons. Boilers: 6 Belleville, 6 Niclausse, 3 Yarrow, 2 Thornycroft. Complement, 700.

## Submarine Depôt Ships

**SMOLNY** (ex-*Tosno*) (Hull, 1907). 3200 tons. Dimensions: 318 × 41 × 18 feet. H.P. 1,200=13 kts. (only good for 10 kts. now). Guns: 4—3 pdr. Coal: 390 tons.



1931 *Photo.*

**KOMMUNA** (ex-*Volkhov*, Putilov, 1913). 2400 tons. Dimensions : 315 × 69 × 11¾ feet. Diesel engines. H.P. 1200 = 10 kts. Radius 3600 miles. Can raise 1000 tons.

*Note.*—Carries all essential stores for submarines (oil fuel, reserve accumulators, &c.), and has compressed air, distilling and charging plant, workshops, &c.

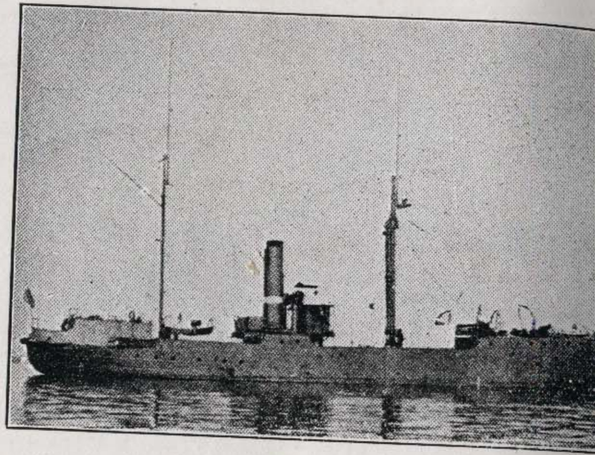
**SOVIETSKAYA ROSSIA** (ex-*Beresan*). 5096 tons. H.P. 2700.

## Depôt Ships.

**KRASNI KUBANETZ** (ex-*Kubanetz*, 1887). 1295 tons. Sister to *Znamya Sozialisma*, described under Gunboats.

**KRASNI KOMANDIR** (ex-*General Brusilov*).

## Repair Ships.



(Now has derrick on forecastle).

**KRASNI GORN** (ex-*Kama*, 1911). 1982 tons. Dimensi
237¾ × 36 × 12 feet. I.H.P. 1250 = 10 kts. Coal :
tons.

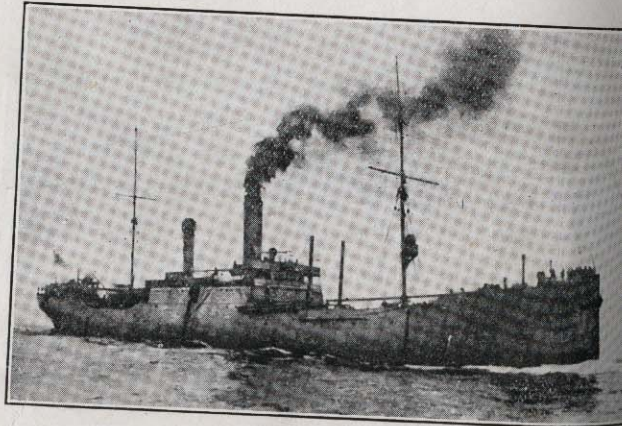


*Photo added* 1929.

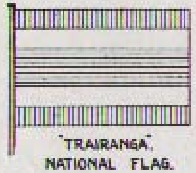
**SERP-I-MOLOT** (ex-*Angara*), (1900). 5,920 tons. Dimension
352 × 46 × 24 feet. I.H.P.: 2,000 = 12 kts. Coal : 1,0
tons.

## Transports.

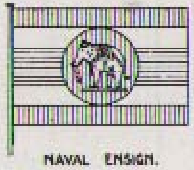
**KURSANT** (ex-*Krasni Leningrad*, ex-*Sukhona*), **OKA**, **MESEN** (1911). Appearance similar to *Krasni Gorn*, above, and particulars identical.

# ROYAL SIAMESE NAVY.

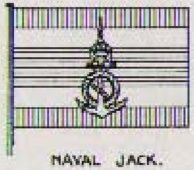
## Flags.



"TRAIRANGA"
NATIONAL FLAG.



NAVAL ENSIGN.



NAVAL JACK.

▥ RED. □ WHITE. ▤ BLUE.

ADMIRAL OF THE FLEET'S FLAG.—A blue flag with a white elephant, and in the upper canton next the staff two yellow anchors crossed surmounted by the Siamese crown.

ADMIRAL'S FLAG.—A blue flag with a white elephant in the centre.

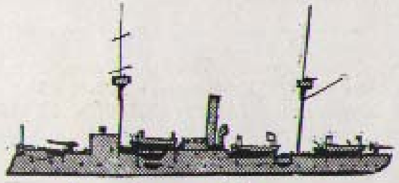
VICE ADMIRAL'S FLAG.—The same as the Admiral's flag but with a white "Chakra" in the upper canton next the staff.

REAR ADMIRAL'S FLAG.—The same as the Admiral's flag but with two white "Chakras" near the staff.

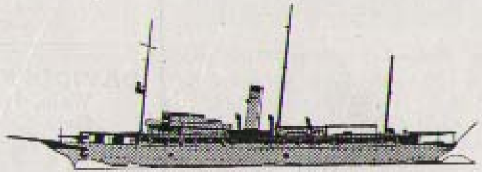
*Personnel:* 4726. Officers: 352.

*Minister of Defence:* Luang Bipul.

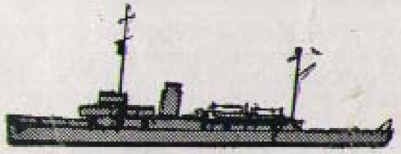
*Commander-in-Chief of Navy:* Eng. Captain Phya Vicharn Chakrakich



Bali, Sugrib, Mongkut.



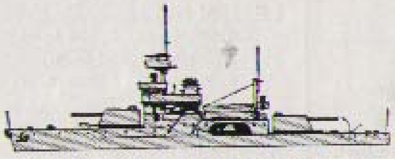
Maha Chakri.



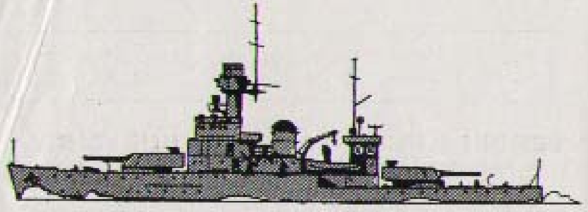
Chow Phraya.

## Mercantile Marine.

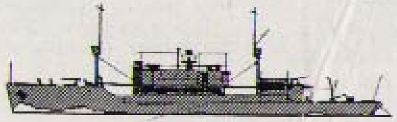
14 steamers of 9,186 tons gross (Bureau Veritas figures).



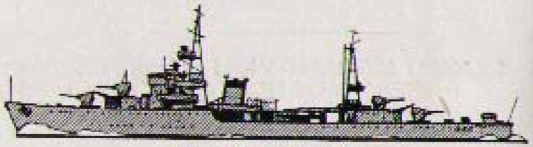
Sukhodaya, Ratanakosindra.



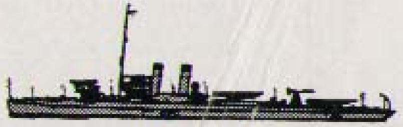
Ahidea *class*.



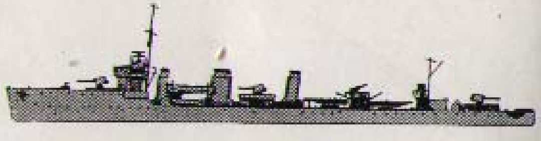
Nos. 1 and 2.



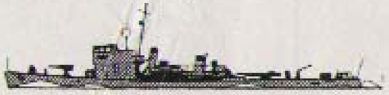
Meklong, Tahchin.



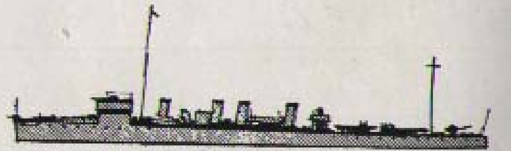
T.B. 1, 2, 3, 4



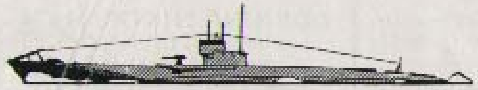
Phra Ruang.



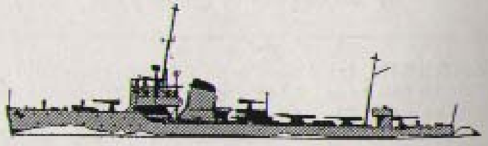
Kantan *class*.



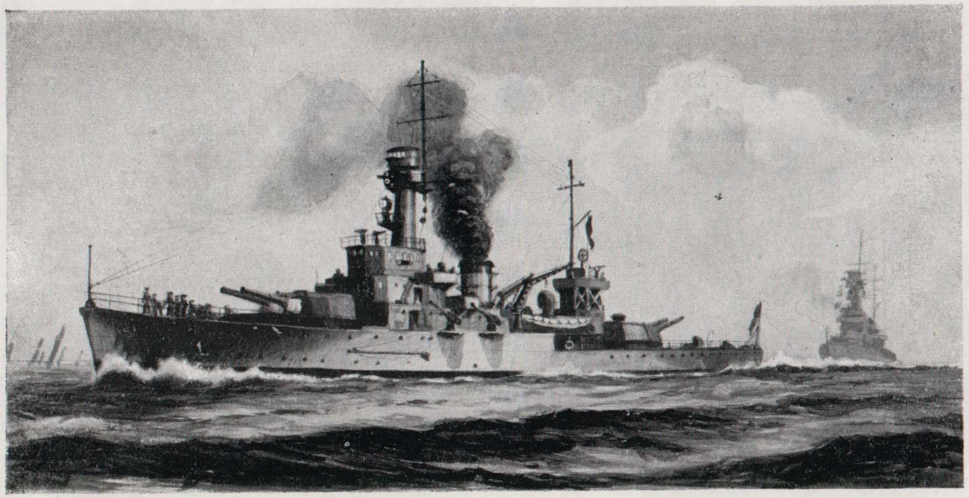
Sua Khamronsindhu.
Sua Tayarnchol (similar without fourth funnel).



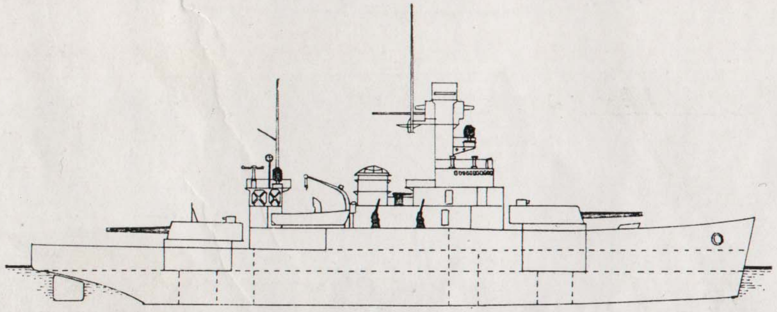
Maachanu *class*.



Trad *class*.



1936 *Illustration.*

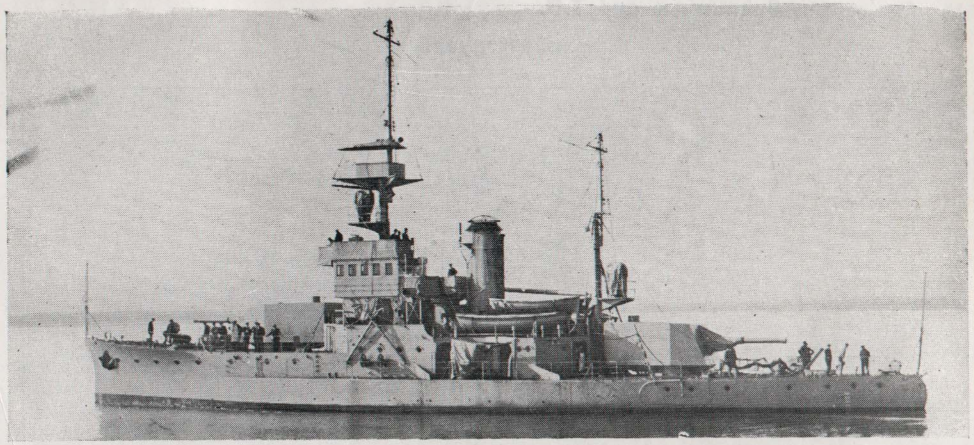


**AHIDEA** (July 21, 1937), and another (building). Both ordered from Kawasaki Co., Kobe, in 1936. Displacement: 2,200 tons. Guns: 4—8 inch. Speed: 15·5 kts.

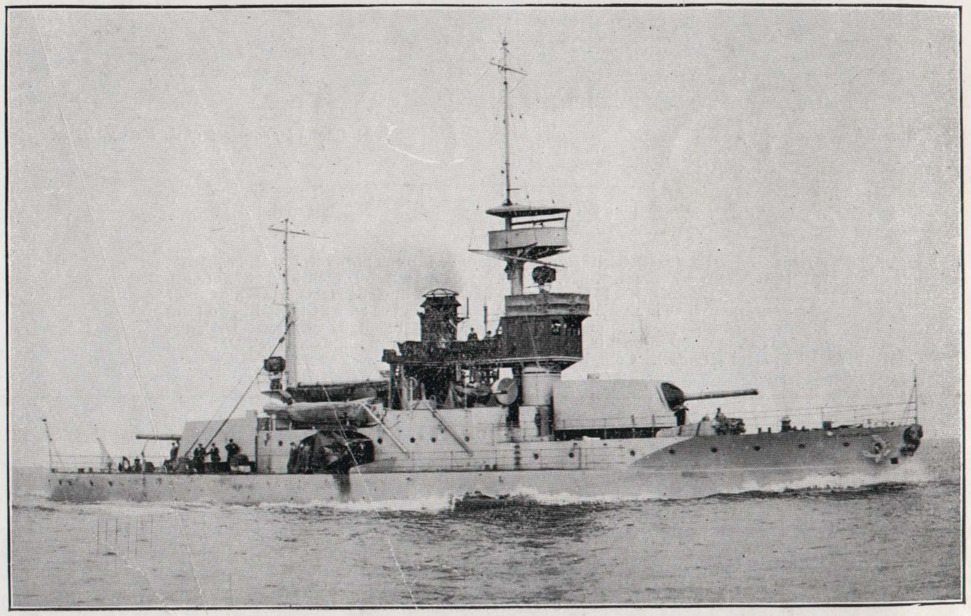
*Note.*—Apparently these ships are an expansion of *Ratanakosindra* design.

Ayutia
Dhamenri

в строю



SUKHODAYA. 1930 *Photo, by courtesy of Messrs. Vickers-Armstrongs.*



RATANAKOSINDRA. 1926 *Photo, by courtesy of Messrs. Armstrongs.*

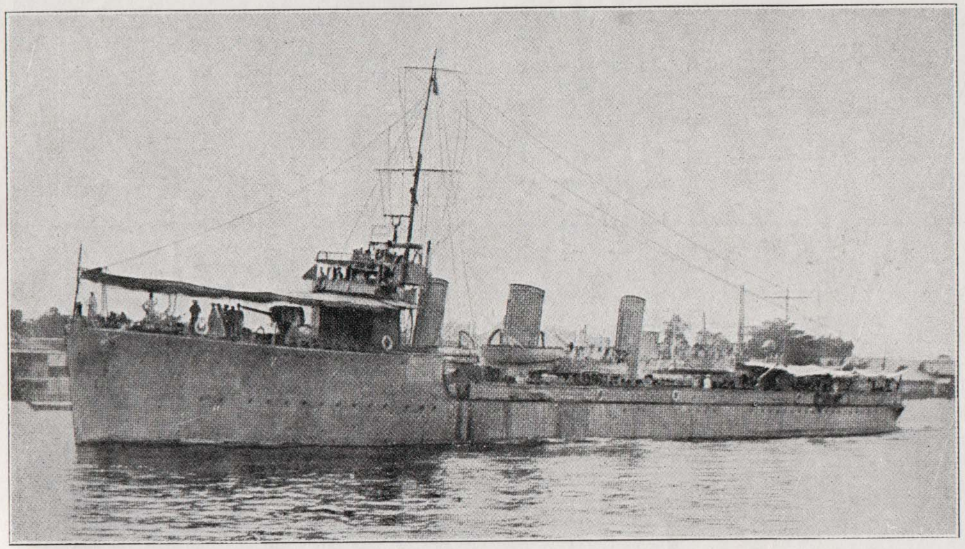
**SUKHODAYA** (Vickers Armstrongs, Nov. 19, 1929).

**RATANAKOSINDRA** (Armstrong, April 21, 1925). 1000 tons. 160 (*p.p.*), 175 (*o.a.*) × 37 × $10\frac{3}{4}$ feet. Guns: 2—6 inch, 4—3 inch AA. Protection: Side $2\frac{1}{2}''$ (amidships), $1\frac{1}{4}''$ ends, nickel steel. Barbette rings, $2\frac{1}{2}''$ nickel steel. C.T. $4\frac{3}{4}''$ cast steel armour. Upper deck, $\frac{3}{4}''$ to $1\frac{1}{2}''$ high tensile steel. 2 screws. Vertical triple expansion engines. H.P. 850 = 12 kts. 2 oil-burning water-tube boilers. Oil: 96 tons. Complement, 103.

*Ratanakosindra* laid down 29th Sept., 1924, and completed August, 1925. *Sukhodaya* completed 1930.

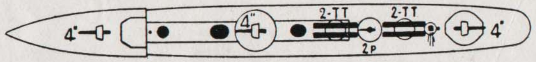
## SIAM—Destroyers, Submarines and T.B.

### Destroyer.



PHRA RUANG. 1921 *Photo, by courtesy of J. Bailey, Esq.*

PHRA RUANG



***Phra Ruang*** (ex-British *Radiant*, launched by Thornycrofts, Nov., 1917. Purchased by Siam, July, 1920). 1,035 tons. Dimensions: 274 (*o.a.*), 265 (*p.p.*), × $27\frac{1}{3}$ × 11 feet (*max.* draught) and $8\frac{1}{2}$ feet (*mean*). Guns: **3**—4 inch **1**—3 inch AA., **1**—2 pdr., **1** M.G. Tubes: **4**—21 inch, in two twin deck mountings. Machinery: Brown-Curtis (all geared) turbines. Designed S.H.P.: 29,000 = 35 kts. (39·67 trials). 3 Yarrow boilers. Oil fuel: *about* 285 tons (*max.*). Complement, 100.

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### Submarines.

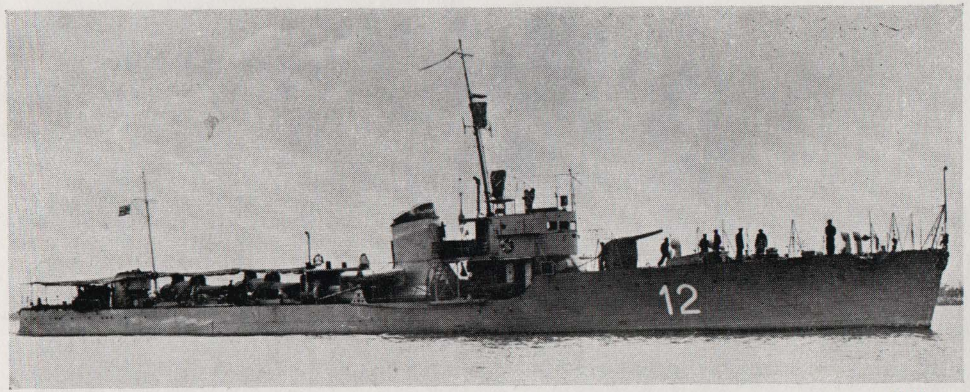
*Completing.*

*For appearance, see silhouette.*

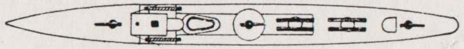
4 *Mitubisi* type: ***Maachanu, Wiln*** (both Dec. 24, 1936), ***Prichunbon, Sinsamutta*** (both May 14, 1937). *Standard* displacement: 370 tons. Dimensions: $167\frac{1}{3}$ × $13\frac{1}{2}$ × 12 feet. Armament: **5** tubes, **1** M.G. Speed: 14·5/8 kts.

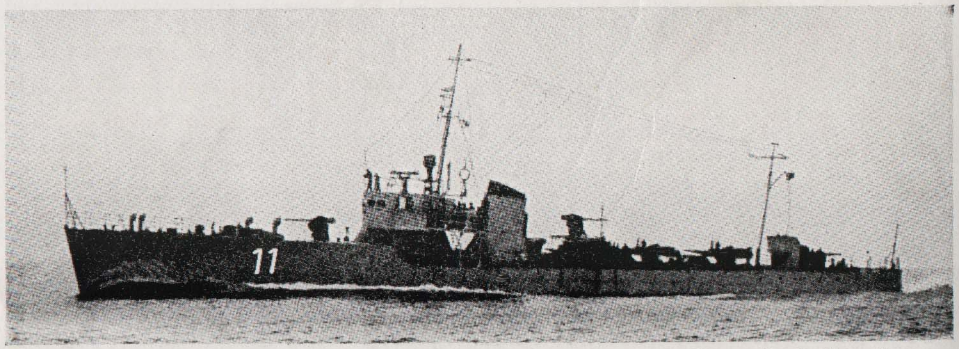
*Notes.*—First pair laid down on April 6, 1936, second pair Oct. 1, 1936.

### 15 Torpedo Boats.



PUKET. 1936.





TRAD. 1936, *courtesy Commander R. Steen Steensen.*

9 *Adriatico* type: ***Trad*** (No. 11) (Oct. 26, 1935), ***Puket*** (No. 12) (Sept. 28, 1935), ***Patani*** (No. 13) (Oct. 16, 1936), ***Surasdra*** (No. 21) (Nov. 28, 1936), ***Chandraburi*** (No. 22) (Dec. 16, 1936), ***Rayong*** (No. 23) (Jan. 11, 1937), ***Chunphorn*** (No. 31) (Jan. 18, 1937), ***Cholburi*** (No. 32) (Feb. 10, 1937), ***Songkla*** (No. 33) (Feb. 9, 1937). *Standard* displacement: 470 tons. Dimensions: (219 *p.p.*), 223 (*o.a.*) × 21 × 7 feet *max.* draught. Armament: **3**—3 inch AA., **2**—20 mm. AA., **4**—8 mm., **6**—18 inch tubes (2 single, 4 paired). Parsons geared turbines. H.P.: 9,000 = 31 kts. Radius: 1,700 miles at 15 kts.

*Notes.*—First 2 laid down Feb. 8, 1935 by Cantieri Navali Riuniti dell'Adriatico, Monfalcone, for delivery by end of 1935. Armament supplied by Vickers-Armstrongs, Ltd. First boat reached 32·54 kts. on trials with 10,000 H.P. All delivered by summer of 1937.

Кор

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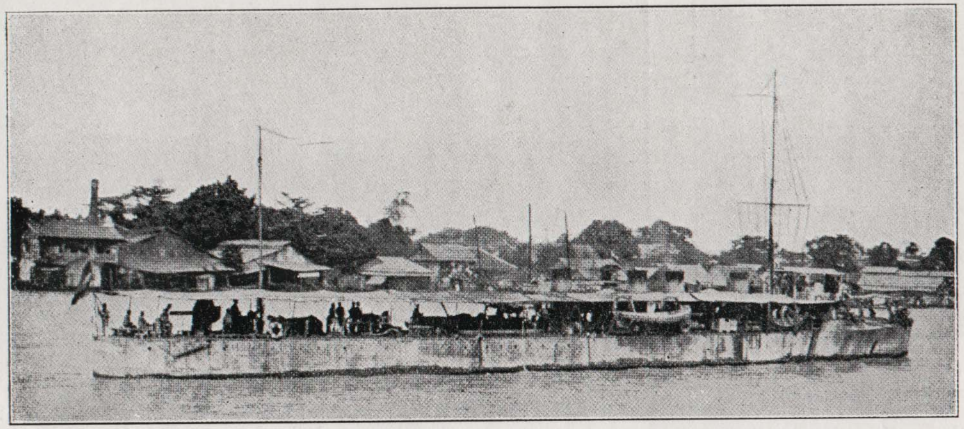
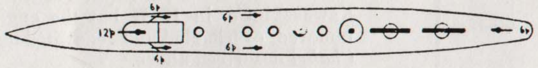
## Torpedo Boats—*continued.*

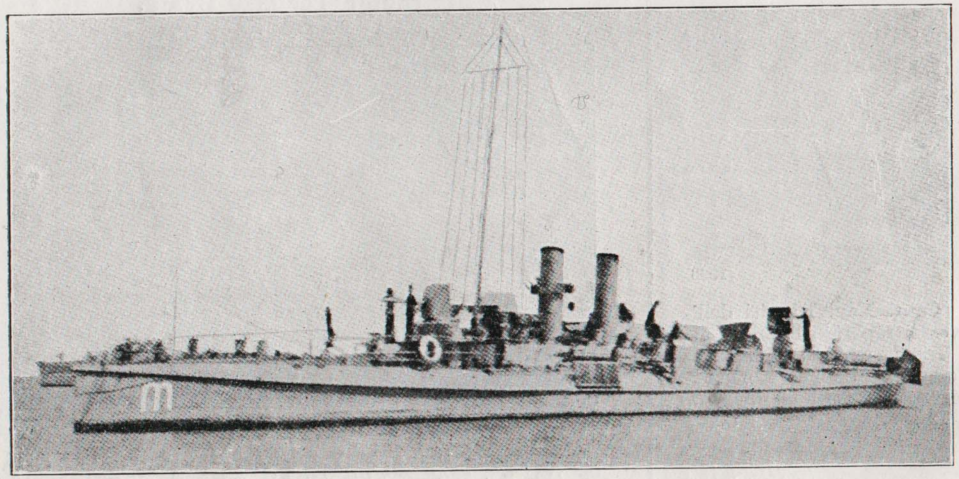


1919 *Photo, J. Bailey, Esq.*

**Sua-Khamronsindhu** (1912), 385 tons, and **Sua-Tayarnchol** (1908), 375 tons. Both built by Kawasaki Co., Kobe, Japan. Dimensions: 227 (*p.p.*) × $21\frac{1}{2}$ × 6 feet. H.P.: 6,000 = 27 kts. Oil: 75 tons = 850 miles at 11 kts. Armament: **1**—3 inch, **5**—6 pdr., **2** M.G.; **2**—18 inch tubes. Complement, 71.

***Note.***—*Sua-Tayarnchol* has no fourth funnel.



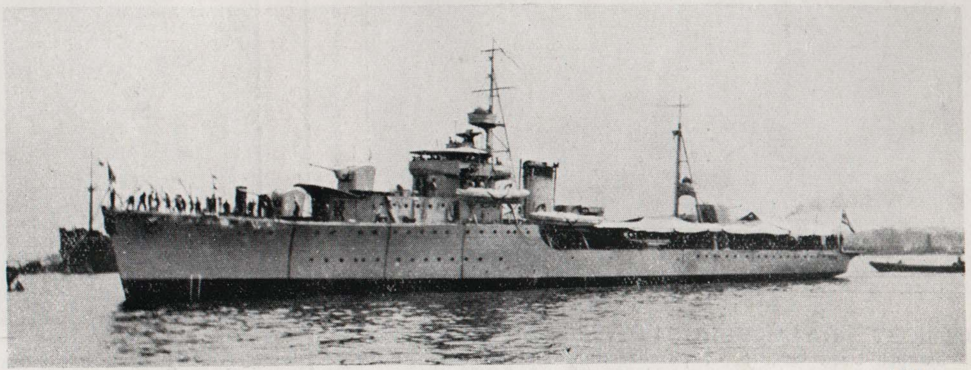


No. 3.

1932 *Photo, Official.*

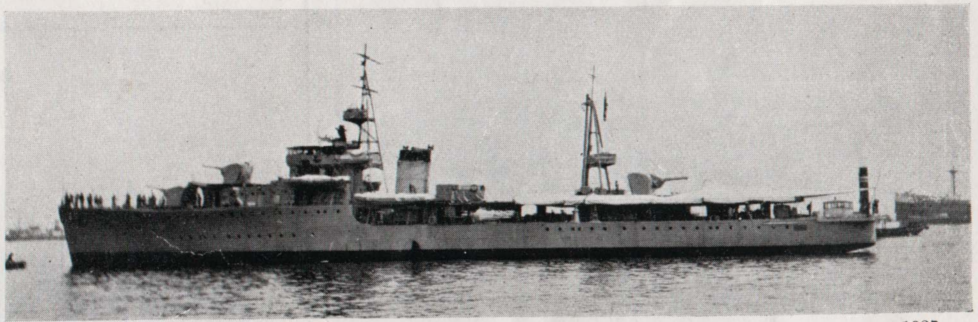
4 *Kawasaki* type:—No. **1**, **2** and **3** (1908) and No. **4** (1913). 120 tons. Dimensions: 131·6 × 16·2 × 3·6 feet. H.P.: 1,200 = 22 kts. Armament: **1**—6 pdr., **1**—3 pdr., **2**—18 inch tubes. Complement, 24.

## Escort Vessels.



Maikron.

1937



Tahchin.

1937.

**TAHCHIN** (July 24, 1936), **MEKLONG** (Nov. 27, 1936), both by Uraga Dock Co. Displacement: 1,400 tons. Dimensions: 269 × $34\frac{1}{2}$ × $10\frac{1}{3}$ feet (*mean*). Guns: **3**—4·7 inch, **2**—20 mm. AA. Tubes: **4**—21 inch (paired). H.P.: 2,500 = 17 kts. Fitted for minesweeping.

Both delivered in June, 1937. (2 more of this type projected.)

*Note.*—These ships are to be used for training the additional personnel demanded by the recent expansion of the Siamese Navy.

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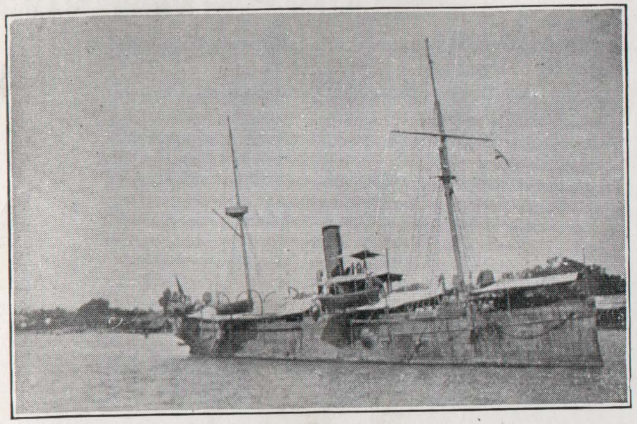
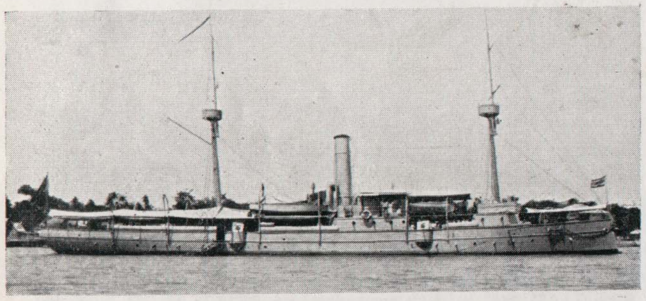
## Gunboats.

**PAGAN, SEECHAUN** (Harima, Nov. 10, 1937). Displacement: 650 tons. Other particulars wanted.

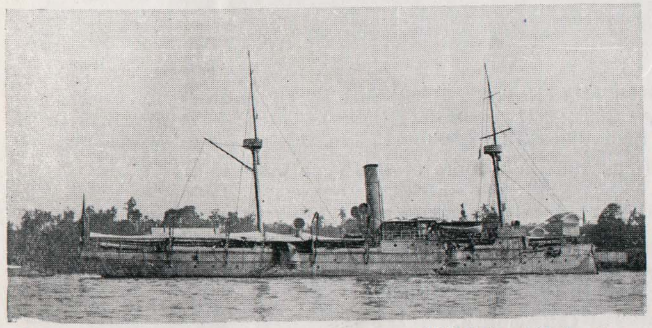
## Gunboats—*continued.*



**MONGKUT RAJAKUMARN** (ex-*Filipinas*, Hongkong and Whampoa Dock Co., 1887; purchased 1891). 700 tons. 175 × 23½ × 11 feet. Guns: **2**—4·7 inch, **2**—6 pdr., **3**—3 pdr. Speed 11 kts. 2 screws. Complement: 100. In reserve.



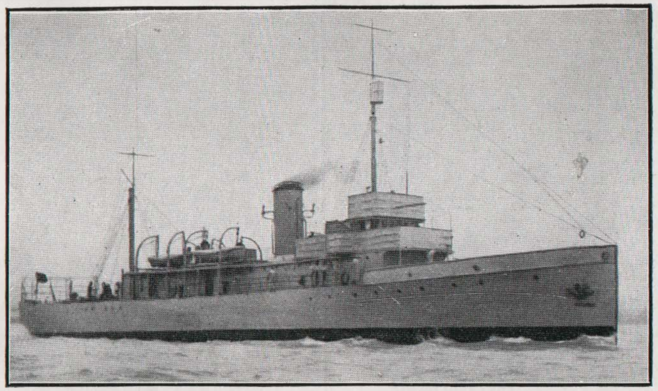
SUGRIB. 1932 *Photo, Official.*



BALI. 1921 *Photo, J. Bailey, Esq.*

**BALI** (1901), **SUGRIB** (1901). 580 tons. 162 × 23 × 10 feet. Guns: **1**—4·7 inch, **5**—6 pdr. Designed H.P. 500 = 11·4 kts. Complement, 75.

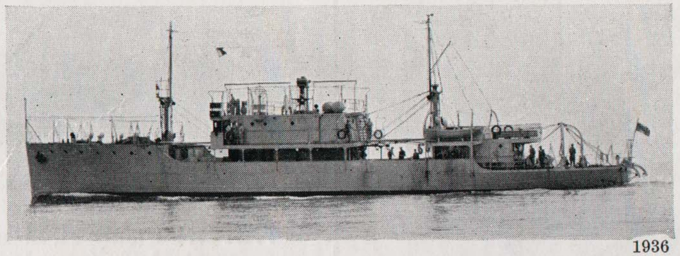
## Training Ship.



CHOW PHRAYA. 1924 *Photo, by courtesy of Messrs. Thornycroft.*

**CHOW PHRAYA** (ex-British Twin Screw Minesweeper *Havant*, built by Eltringhams, S. Shields, Nov., 1918, purchased 1923 and reconstructed by Messrs. Thornycroft). Displacement, 840 tons. Dimensions: 220 × 28½ × 7½ feet. Machinery: Vertical triple expansion. Boilers: Yarrow, converted to burn oil. I.H.P. 2200 = 16 kts. Oil: 160 tons. Complement, 65.

## Minelayers.

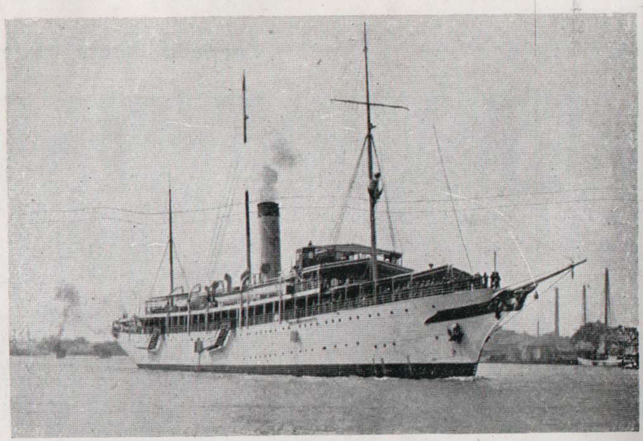


1936

No. **1** (1936), No. **2** (July 22, 1936). Cant. Nav. Riuniti dell' Adriatico, Monfalcone. (A third vessel reported building at Cant. Nav. Riuniti, Ancona.) Displacement: 368 tons *standard*, 408 tons *full load*. Complement: 55. Length: Under 200 feet. Guns: **2**—3 inch AA. Diesel engines of Burmeister & Wain type. Speed: 12 kts.

Nonsarai
Bangradian

## Royal Yacht.

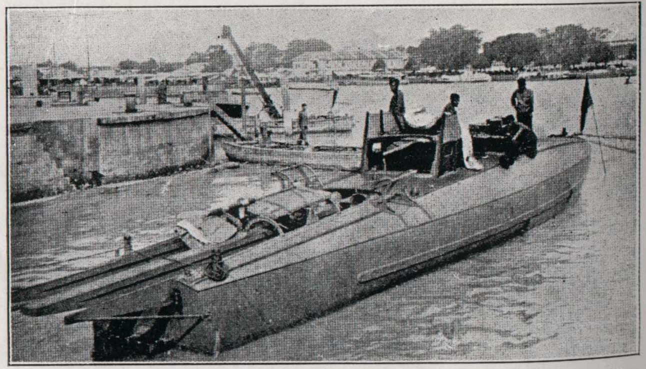


1919 *Photo, J. Bailey, Esq.*

**MAHA CHAKRI** (Kawasaki Co., Kobé, Japan, 1918). About 2,400 tons *gross*. Complement, 199. Length, 298 feet (*w.l.*) 335 feet (*o.a.*). Beam, 40 feet. Draught, feet. Guns: Not known. Machinery (*see Notes*): 2 sets triple exp. Boilers: 4 (type unknown) coal and oil burning. I.H.P. about 2000 = 15kts.), Oil fuel: 200 tons = 2000 miles endurance. 2 screws.

*Notes.*—The hull of the old Royal Yacht *Maha Chakri* was sold to the Kawasaki Co. in 1917, but the engines and other fittings were removed, overhauled and renovated for installation in the new *Maha Chakri* described above.

## Motor Torpedo Boats.

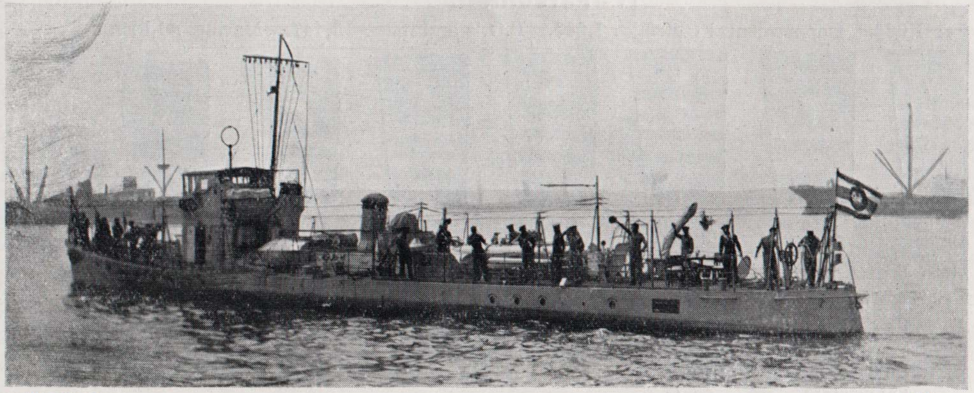


1925 *Photo, by courtesy of Messrs. Thornycroft.*

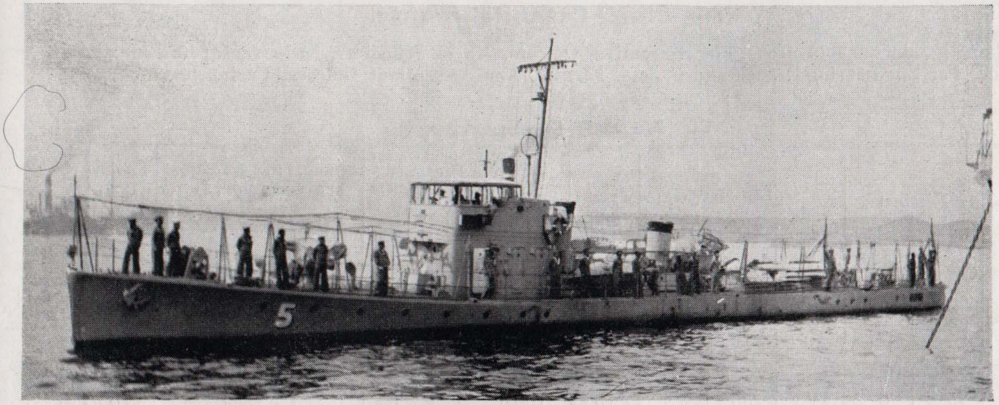
5 *Thornycroft* type: Nos. **1** to **5** (1922). 11 tons. 55 × 11 feet. B.H.P.: 750 = 37 kts. (40 kts. *extreme*). Petrol carried: 300 gallons *normal*, 500 *max*. **4** Lewis guns, **2** torpedoes, **2** D.C. Complement, 5.

3 *Thornycroft* type: Nos. **6** to **8** (1935). 16 tons. B.H.P. 950 = 40 kts. **2** M.G., **2** torpedoes, **2** D.C.

## Patrol Vessels.



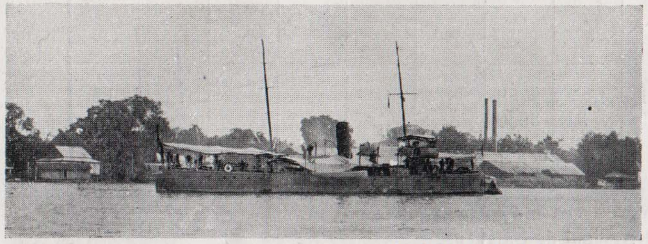
TAKUBAI. 1937.



KLONGYAI 1937.

**KANTAN** (No. 7), **KLONGYAI** (No. 5), **TAKUBAI** (No. 6) (Isikawazima Co., March 26, 1937), and 2 more projected. Displacement: 110 tons *standard*, 135 tons *full load*. Guns: 1—3 inch, 1 M.G. Tubes: 2—18 inch. Speed: 18 kts.

*Notes*——First 3 completed June 21, 1937.

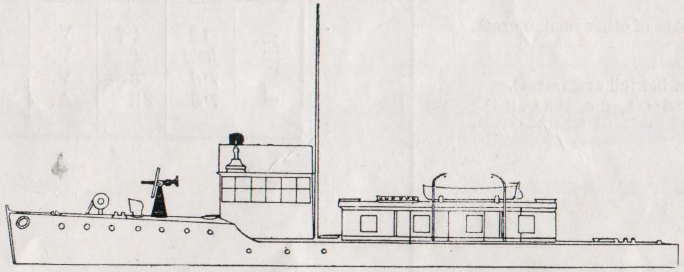


*1921 Photo, J. Bailey, Esq.*

**SRIYA* MONTHON** (Thornycroft, 1908). Displacement: 225 tons. Dimensions: 137 (*p.p.*) × 18 × $6\frac{1}{2}$ (*mean* draught) feet. Guns: 2—6 pdr. I.H.P. 700 = 14·5 knots speed. Coal: 66 tons. No. of Screws: 2. Boilers: 1 (type unknown). Complement, 34.

* Usually known by first name only.

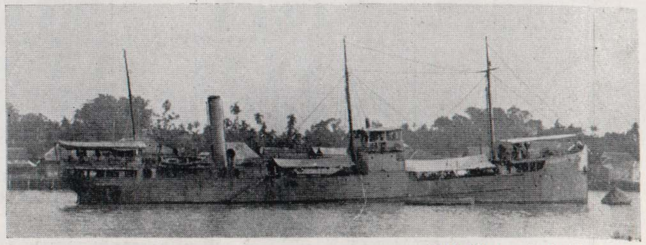
## Fishery Protection Vessels.



3 built in Royal Dockyard, Bangkok, 1936. Displacement: 50 tons. (A fourth projected.)

## Transports.

**AMTHONG.** Particulars wanted.



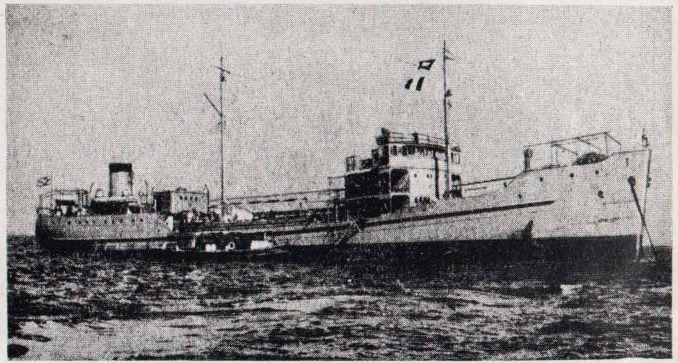
*1921 Photo, J. Bailey, Esq.*

**VIDES* KICHKAR** (ex-*Buk*, ex-*Lycidas*, Ritson & Co., Maryport, 1902). 850 tons, $176 \times 27\frac{1}{6} \times 10\frac{1}{2}$ feet. H.P. 780 = 9 to 10 kts.

* Usually known by first name only.

**PRA-YOM.** Displacement 190 tons. Dimensions: 110 × 18 × 8 (*mean* draught) feet. H.P. 225 = 10 kts. Complement, 30.

## Oilers.



1936

**SUMUI** (Hakodate Dock Co., April 18, 1936), and another projected. Displacement: 1,854 tons *standard*. Dimensions: 240 × 39 × feet. 2 Sulzer Diesel engines. B.H.P. 2,141 = 12 kts.

## Despatch Vessel.

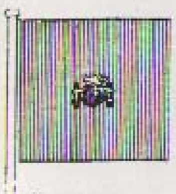
**PI-SUA-NAM.** Displacement 165 tons Dimensions: $100 \times 20 \times 8\frac{1}{2}$ (*mean* draught) feet. H.P. 210 = $9\frac{1}{2}$ kts. Complement, 25.

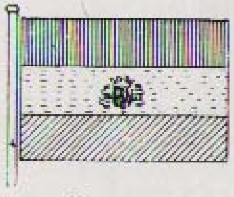
Also 3 ex-N.D.L. steam lighters, re-named *Chen Thale*, *Han Thale*, *Leu Thale*, built by Hongkong and Whampoa Dock Co. About 160 × 27 × feet, 440 tons *gross*. *Nom.* H.P. 60 = 8 kts. speed. Seized during the war and now used for various purposes, including occasional surveying duties.

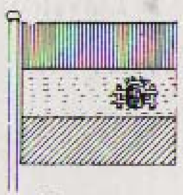
There are various small craft used for River Duties of which no precise details are available.

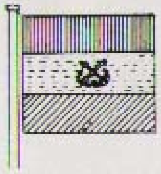
# SPANISH NAVY.

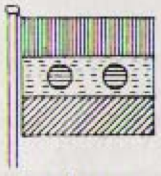
## I—Flags.

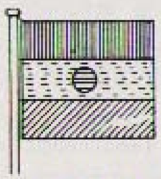

PRESIDENT.

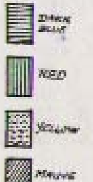

NATIONAL.

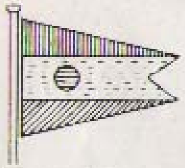

MINISTER OF THE REPUBLIC.

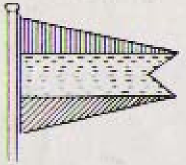

MINISTER OF MARINE.

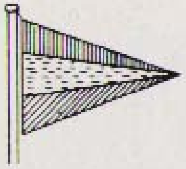

VICE-ADMIRAL.

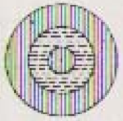

REAR-ADMIRAL.




DIVISIONAL CAPTAIN.


DIVISIONAL COMMANDER.


SENIOR OFFICER.


SEAPLANES

## II—Administration.

*Minister of Marine*—His Excellency Sr. Dn. Indalecio Prieto.
*Under Secretary of the Navy*—Captain Sr. Dn. Juan Muñoz-Delgado.
*Chief of the Staff*—Vice-Admiral, His Excellency Sr. Dn. Javier de Salas.
*Naval Attaché (London)* Commander Sr. Don Fernando Navarro y Capdevila.

## III—Fleet Organisation.

The following represents the approximate division of Spanish naval units between the contending parties in the Civil War:

(*a*) Government Ships

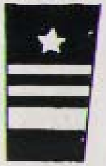
Battleship: *Jaime Primero* (out of action).
Cruisers; *Libertad* (out of action), *Miguel de Cervantes*, *Mendez Nuñez.*
About 12 effective destroyers, 6 torpedo boats, 4 or 5 submarines, and a number of other smaller craft.

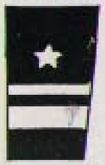
(*b*) Insurgent Ships.

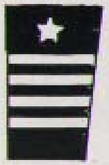
Cruisers: *Canarias*, *Baleares*, *Almirante Cervera*, *Navarra* (*Baleares* has not her full armament).
Destroyers: *Churruca Velasco*; T.B.'s 2, 7, 9, 16, 19; Submarines *C 3 C 5*, *C 6*, B 5; all the Minelayers; Gunboats *Canovas del Castillo* and *Dato*, and a large number of smaller craft, including armed merchantmen and trawlers.

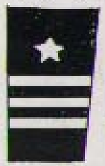
## IV—Personnel.

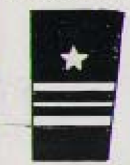
Officers: 1,686. Departmental Officials: 1,666. P.O.'s and men: 15,447. Marines: 1,619.

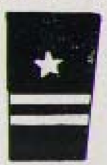

Vice-Almirante, *Vice-Admiral*

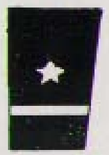

Contra Almirante. *Rear-Admiral.*


Capitán de Navio *Captain.*


Capitán de Fragata. *Commander.*


Capitán de Corbeta. *Lieutenant-Commander.*


Teniente de Navio. *Lieutenant.*


Alferez de Navio. *Sub-Lieutenant.*

Other branches, *without a star*, have distinguishing colours as follows:—

| | | | |
|---|---|---|---|
| Engineers ... | *green.* | Astronomical ... | *green brown.* |
| Constructors ... | *blue.* | Pharmacists. ... | *yellow.* |
| Surgeons. ... | *red.* | | |
| Paymasters ... | *white.* | | |

## V—Training Establishments.

Shore Establishments are:—For Executive Officers, Naval School (*Escuela Naval Militar*), San Fernando. For Engineering Branch and Cadets, Ferrol. For Accountant Officers, Cartagena.

## VI. Naval Ordnance.

| Notation. | Nominal Calibre. | | Model. | Length in calibres | Weight of Gun. | Weight of A.P. shell. | Initial velocity | Max. penetration A.P. capped direct impact at K.C. at | | Danger Space against average ship, at | | | Rounds per minute. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 5000 yards. | 3000 yards. | 10,000 yards. | 5000 yards. | 3000 yards. | |
| HEAVY | c/m. | inches. | | | tons. | lbs. | ft. secs. | inches. | inches. | | | | |
| | 30·5 | 12 | V'09 | 50 | 66 | 850 | 3010 | 17 | 20 | ... | ... | ... | 2 |
| | *20 3* | 8 | V. | 50 | 15 | 256 | 3000 | ... | ... | ... | ... | ... | 6 |
| MEDIUM | *15·2* | 6 | *V. | 50 | 7¾ | 100 | 3100 | ... | 8¾ | ... | ... | ... | 10 |
| LIGHT | 12 | 4·7 | V. | 45 | 3·1 | 48·5 | 2788 | ... | ... | ... | ... | ... | 12 |
| | *10·2* | 4 | V. | 50 | 2·1 | 31 | 3030 | ... | ... | ... | ... | ... | 15 |
| | *7·6* | 3 | V. | | | | | | | | | | |
| | *7·6* | 3 | A. | | | | | | | | | | |

V=Vickers. A—Armstrong.
* Arsenal de Carraca.

## VII. Colour of Ships.

Light grey.

## VIII. Mercantile Marine.

From "Lloyd's Register," 1937 figures. 867 vessels of 1,054,682 gross tonnage.

## JAIME PRIMERO (Sept., 1914).

*Normal* displacement, 15,452 tons (16,140 tons *full load*). Complement, 854.

Length (*waterline*) 435 feet, (*o.a.*) 459 feet. Beam, 78¾ feet. *Max.* draught, 27¾ feet.

Guns (Vickers and Skoda):
- **8**—12 inch, 50 cal.
- **20**—4 inch. 50 cal.
- **2**—3 inch AA.
- 2—3 pdr. (Skoda)
- **10** M.G.
- (**2**—12 pdr. landing).

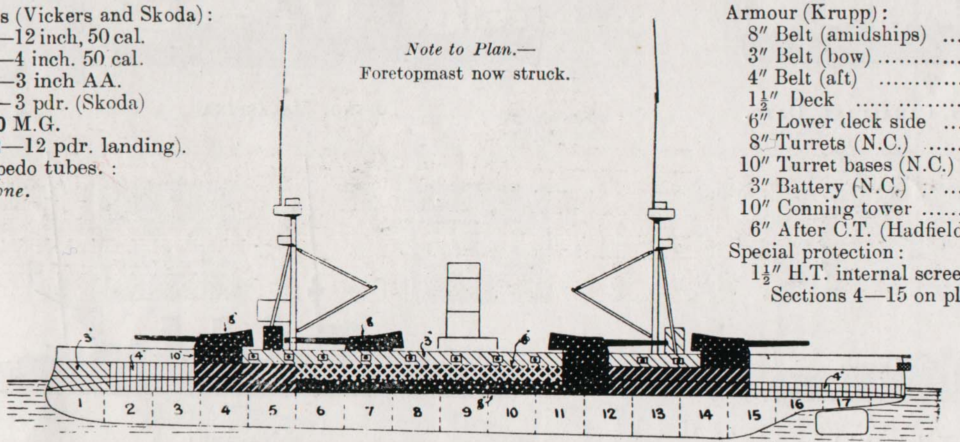
Torpedo tubes.:
*none*.

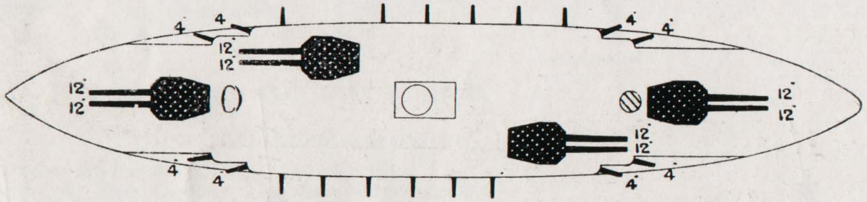
Armour (Krupp):

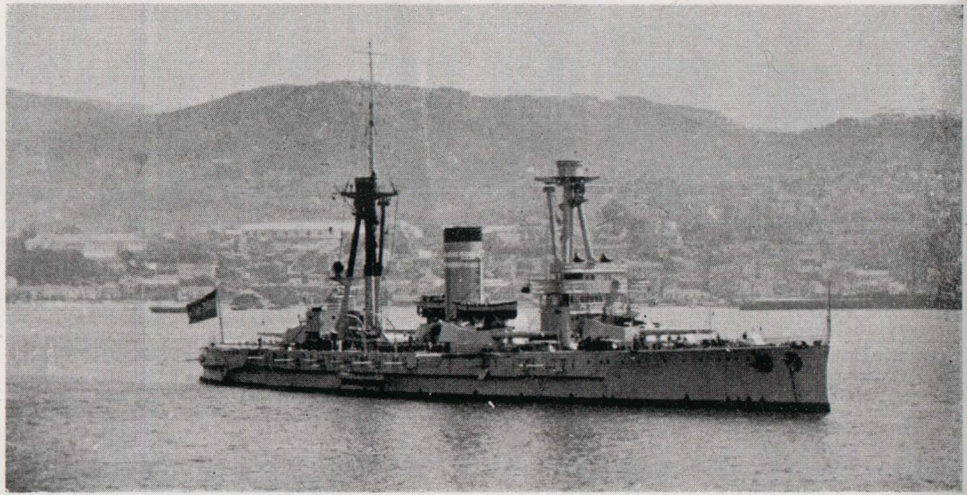
| | |
|---|---|
| 8″ Belt (amidships) | ■ |
| 3″ Belt (bow) | ▨ |
| 4″ Belt (aft) | ▥ |
| 1½″ Deck | |
| 6″ Lower deck side | ▩ |
| 8″ Turrets (N.C.) | ■ |
| 10″ Turret bases (N.C.) | ■ |
| 3″ Battery (N.C.) | ▨ |
| 10″ Conning tower | ■ |
| 6″ After C.T. (Hadfield) | ▨ |

Special protection:
1½″ H.T. internal screens over Sections 4—15 on plans.

*Note to Plan.*—
Foretopmast now struck.







JAIME I. 1936, *Capt. Hugh Vivian.*

(Present effectiveness *nil.*—see Notes.)

Machinery: Parsons turbine. 4 screws. Boilers: 12 Yarrow. Designed H.P. 20,000 = 20 kts. Coal: *normal* 900 tons; *maximum* 1900 tons + 20 tons oil fuel = nominal radius of 5000 miles at 10 kts., and 3100 miles at 16¾ kts.

*Gunnery Notes.*—Vickers type 12 inch gun directors in control top on each mast. 12 inch manœuvred by hydraulic power; all-round loading at any angle of elevation. Magazine capacity is 80 rounds per 12 inch gun, but there is ample storage for more than this. Arcs of fire: end 12 inch, *about* 270°; echelon 12 inch, 180° on own beam (*nominal*) and about 80° far beam. Heights of guns over normal waterline: 12 inch, 24½ feet; 4 inch, 13½ feet. Total weight *about* 2550 tons. (These notes are not from any official source.)

*Armour Notes.*—Main belt is 6 feet 7 inches deep, 4 feet 7 inches of this being below waterline and 2 feet above. On plans 8 inch belt amidships should extend to bases of end barbettes.

*Machinery Notes.*—Engines weigh 1,320 tons.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials (Full Power)* | *Boilers* | *Best recent speed* |
|---|---|---|---|---|---|---|---|
| *Jaime I* | Ferrol Yard | S. E. C. N. | Feb.'12 | 1921 | 23,357 = 20·028 | Yarrow | |

*General Notes.*—Built under Navy Law of 7th January 1908. Construction of *Jaime I* was greatly impeded by delivery of materials from England being stopped during the War up to 1919. A second ship of this type, *España*, wrecked on Riff coast of Morocco, August, 1923, and became a total loss. A third, *Alfonso* XIII, was later renamed *España*, and sank after striking a mine on April 30, 1937. *Jaime I* sank in harbour after an internal explosion at Cartagena in June 1937, and is unlikely to be effective for many months to come.

## 1st Class Cruisers

(*Cruceros de 1a Clase*).

(Baleares Class—2 Ships.)

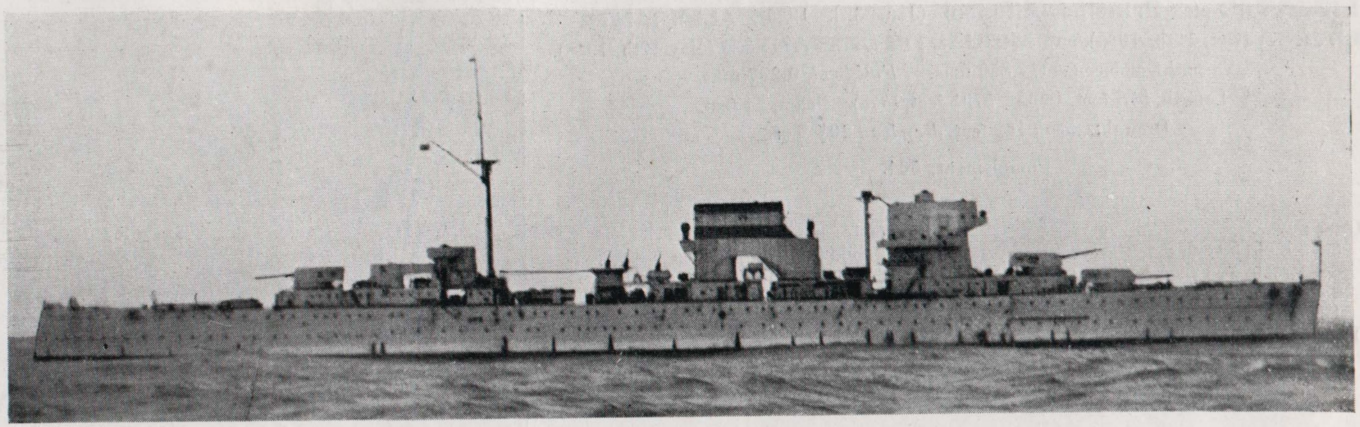
**BALEARES** (Apl. 20th, 1932).
**CANARIAS** (May 28th, 1931).

Displacement: 10,000 tons *standard* (12,230 tons *full load*). Complement, 765.

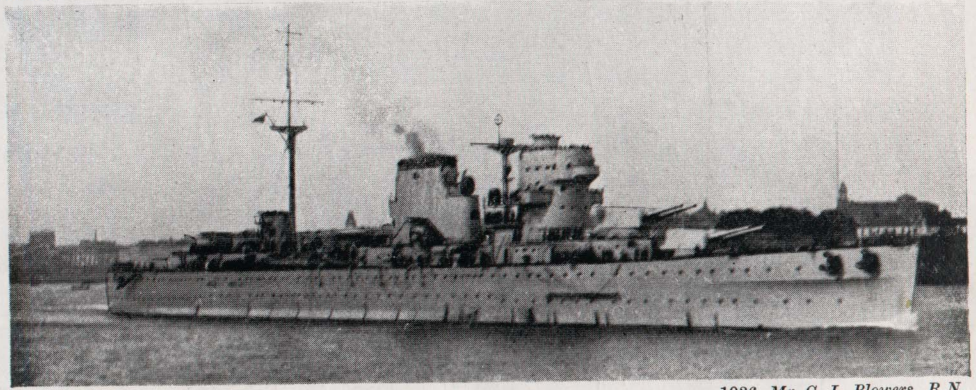
Length, 636 feet.

Beam, 64 feet.

Draught, 17½ feet (*mean*).



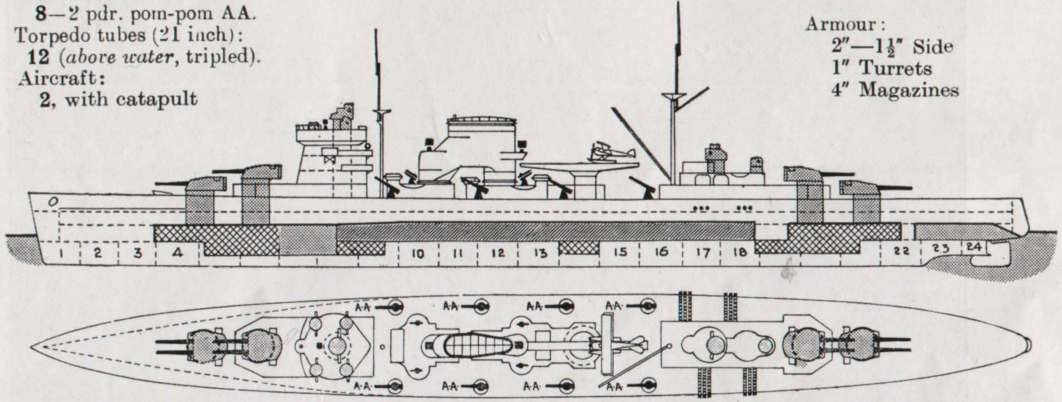
Baleares (Observe absence of No "Y" turret). 1937, *courtesy Mons. H. Le Masson.*



Canarias. 1936, *Mr. G. L. Blowers, R.N.*

Guns:
8—8 inch.
8—4·7 inch AA.
8—2 pdr. pom-pom AA.
Torpedo tubes (21 inch):
12 (*above water*, tripled).
Aircraft:
2, with catapult

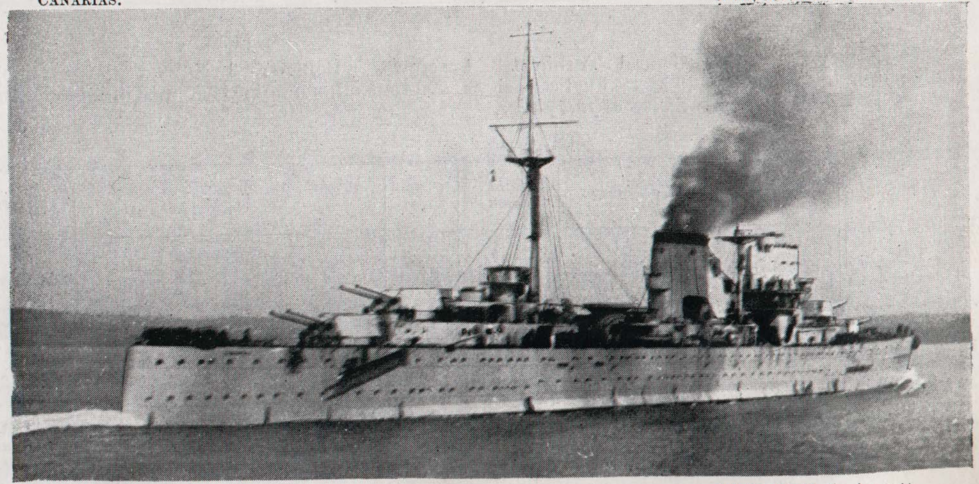
Armour:
2"—1½" Side
1" Turrets
4" Magazines



Machinery: Parsons geared turbines. Designed S H P. 90,000 = 33 kts. Boilers: 8 Yarrow. Oil: 2,794 tons. Radius: 8000 miles at 15 kts.

*General Notes.*—Both ships designed by Sir Philip Watts, and laid down at Ferrol, August 15, 1928. *Canarias* completed in 1935, *Baleares* in 1937, except for installation of aftermost turret (vide photo).

*Gunnery Note.*—Maximum elevation of 8-inch guns is 70°.



Canarias 1936, *Mr. G. L. Blowers.*

Galicia

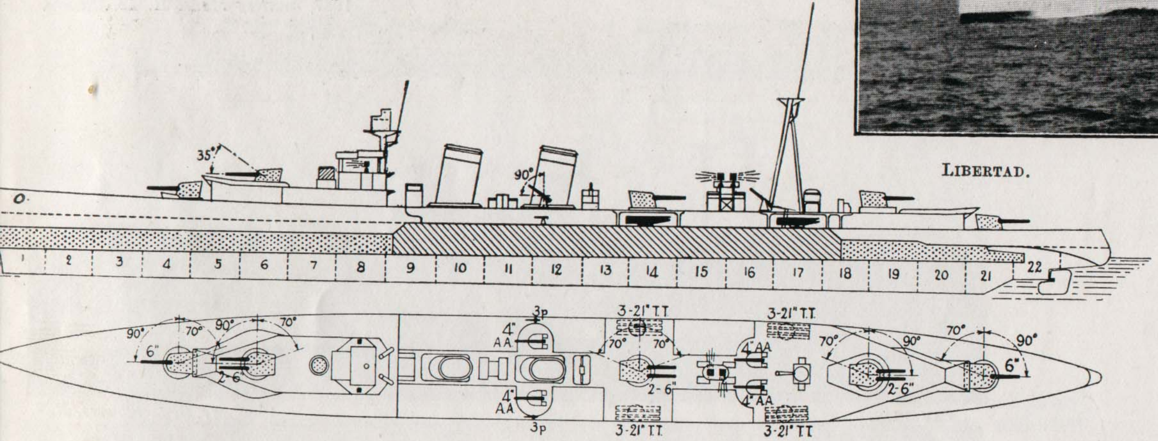
**~~LIBERTAD~~** (ex-**Principe Alfonso**) (Jan. 3rd, 1925), **ALMIRANTE CERVERA** (Oct. 16th, 1925), and **MIGUEL DE CERVANTES** (May 19th, 1928).

*Normal* Displacement, 7,850 tons. *Full load*, 9,237 tons.
Length, 575 feet, (*p.p.*) 579½ feet, (*o.a.*) Beam, 54 feet.
Draught, *mean* 16½ feet, *deep load* 20½ feet.

Complement, 564.

Guns:
**8**—6 inch, 50 cal.
**4**—4 inch, 45 cal. AA.
**2**—3 pdrs. AA.
**1** Machine.
Tubes:
**12**—21 inch (tripled) in revolving mounts on upper deck.

Armour:
3″ Side (amidships.) ..............
2″ Side (forward.) ................
1½″ Side (aft.) ......................
1″ Deck. ...................... .......
2″ (H.T. ?) over rudder. ?........
6″ Conning tower. ?............

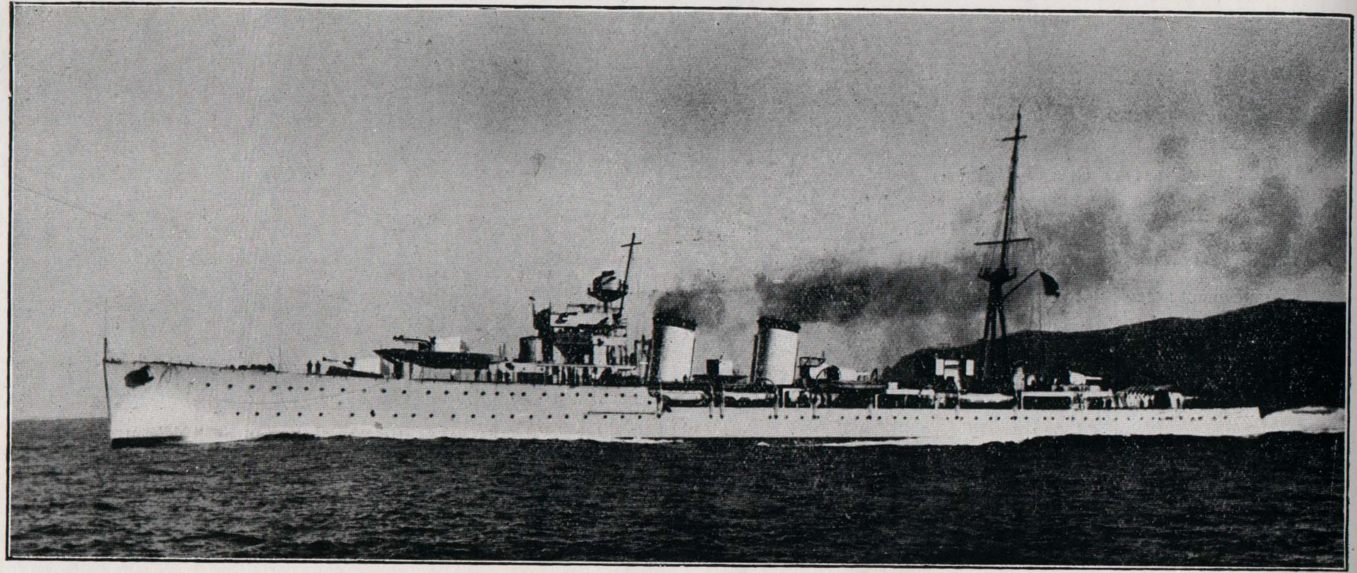


Machinery: Parsons Geared Turbines. 4 screws. Boilers: 8 Yarrow (large tube). Designed S.H.P. 80,000 = 33 kts. Fuel capacity: 500 tons oil, *normal*; 1650 tons oil, *maximum*. Endurance: 5000 at 15 kts., 1200 at *full power*.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* | *Boilers* |
|---|---|---|---|---|---|---|
| *Libertad* | Ferrol D.Y. | S. E. C. N. | Aug. '22 | Dec. '25 | 83000 = 34·7. | Yarrow |
| *Alm. Cervera* | | | 25 Nov '22 | May '27 | | |
| *M. de Cervantes* | | | Apr. '26 | 1931 | | |

*Notes.*—Laid down by S.E.C.N. at Ferrol D.Y., under Navy Law of 17th Feb., 1915. Cost estimated at about 8122 pesetas a ton.

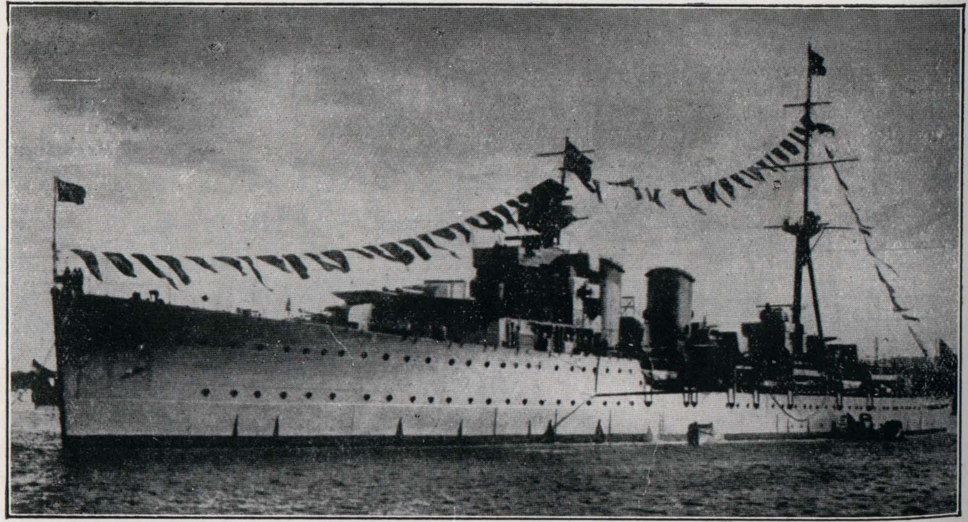
Designed under direction of late Sir Philip Watts, K.C.B., Director of Sir W. G. Armstrong, Whitworth & Co., Ltd., for Spanish Government. Are practically modifications of British "E" class, with second, third and fourth gun positions paired and beam guns omitted.



LIBERTAD.

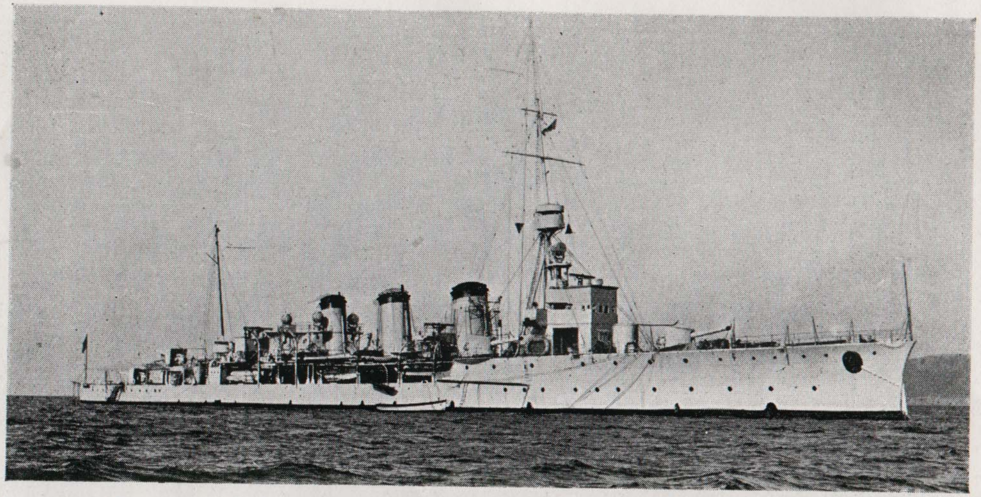
1927 *Photo, Capitán Mateo Mille.*

*Special Note.*—*Libertad* was torpedoed Nov. 25, 1936, and has since been under repair. Non-effective during 1937.



LIBERTAD.

1929 *Photo, Renard, Kiel.*



Observe tripod foremast and s.l. around after funnel.

1932 *Photo, Capitan M. Mille.*

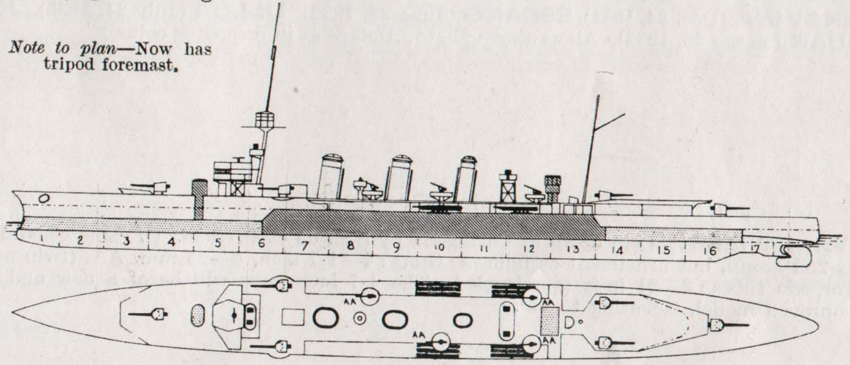
## MENDEZ NUÑEZ (3rd March, 1923).

*Normal* Displacement: 4650 tons. (*full load*, 6043 tons). Complement, 320.
Length, (*p.p.*) 440 feet, (*o.a.*) 462 feet. Beam, 46 feet. Draught, 14⅓ feet *mean* 19 feet *max.*

Guns:
**6**—6 inch, 50 cal.
**4**—3 pdr. AA.
**4** machine.
(**1**—12 pdr. landing.)
Torpedo Tubes (21 inch):
**12** *above water* (triple mountings).

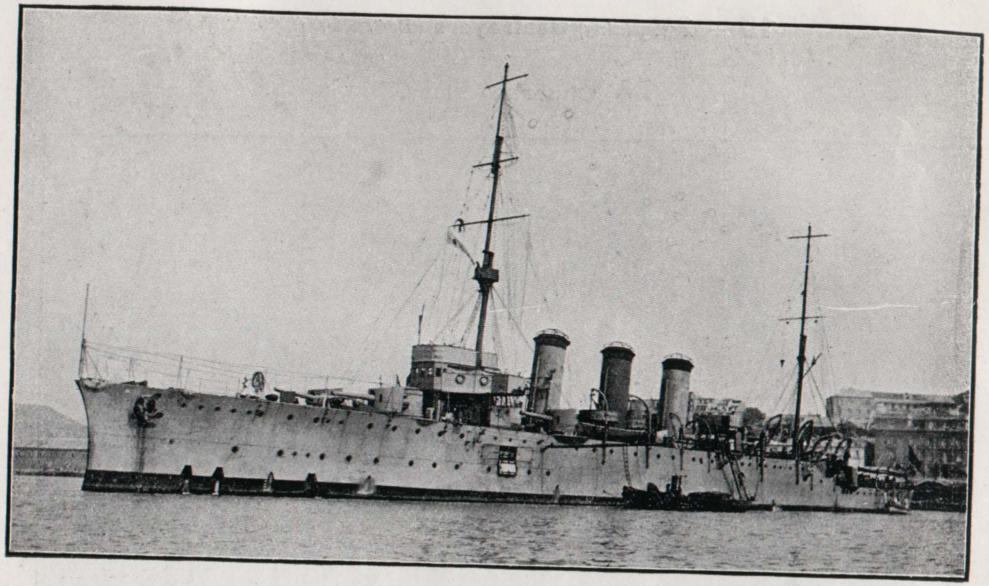
Armour:
3″ Side amidships ................
2½-1¼″ Side (ends) ................
1″ Deck ................
6″ C.T. ................
″ Director tower ................

*Note to plan*—Now has tripod foremast.



Machinery: Parsons (geared) turbines. 4 screws. Boilers: 12 Yarrow (6 oil burning, 6 mixed firing). Designed H.P. 45,000 = 29 kts. Coal: *normal*, 250 tons; *maximum*, 787 tons + 492 tons oil. Radius: 5000 miles at 13 kts. *Blas de Lezo*, wrecked July 11, 1932, was a sister ship.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* | *Boilers* |
|---|---|---|---|---|---|---|
| *Nuñez* | Ferrol D.Y. | S. E. C. N. | 28 Sept.'17 | 1924 | 43,776 = 29·28 | Yarrow |



Observe open port, showing t.t.

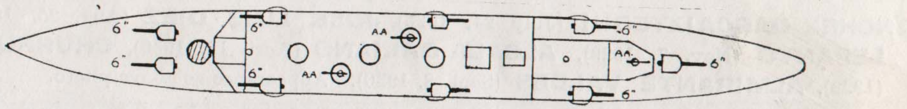
1925 *Photo, Capitán M. Mille.*

## NAVARRA, (ex-Republica, ex-Reina Victoria Eugenia) (21st April, 1920).

Displacement, 5502 tons. 6348 tons *full load.* Complement, 404.
Length (*p.p.*) 440 feet, (*o.a.*) 462 feet. Beam, 50 feet. *Mean* draught, 15¾ feet, *max.*, 21¾ feet.

Guns (Vickers):
**9**—6 inch, 50 cal.
**4**—3 pdr. AA.
**1**—12 pdr. (Field)
**4** Machine
Torpedo tubes: (21 inch).
**4** *above water* (twin mountings).

Armour (Nickel and H.T.):
3″ Side ........... ▨
2½-1¼″ Ends ...... ⁞⁞⁞
3″ Deck ...........
6″ Conning tower



Machinery: Parsons turbines. 2 screws. Boilers: 12 Yarrow (coal and oil burning), in 3 rooms. Designed H.P. 25,500 = 25·5 knots. Coal: *normal* 660 tons (inclusive of oil fuel), *maximum* 1,227 tons. Radius: 4,500 miles at 15 kts.

***Gunnery Notes.***—6 inch are Vickers models, built at La Carraca. Those on Forecastle have 180° arc of training, *i.e.*, 30° inboard and 150° on own beam.

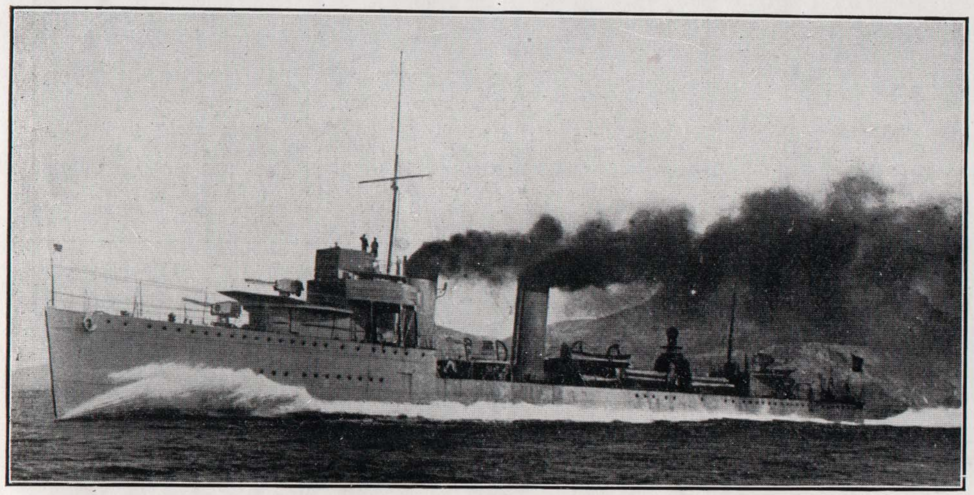
***Torpedo Notes***—Above water tubes are behind lidded ports on main deck above section numbered 5.

| *Name* | *Builder* | *Machinery* | *Ordered* | *Laid down* | *Completed* | *Trials* | *Boilers* | *Best recent speed* |
|---|---|---|---|---|---|---|---|---|
| *Navarra* | Ferrol D.Y. | S. E. C. N. | Aug. '14 | Mar. '15 | 15 Jan., '23 | 8 hours:<br>26,049 = 25·77<br>4 hours:<br>28,387 = 26·9 | Yarrow | 25·7 |

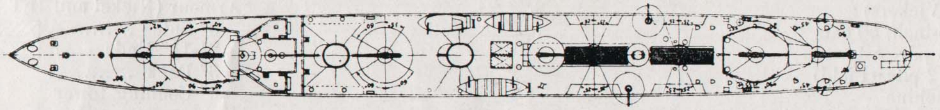
***General Notes.***—Built under Navy Law of 30th July, 1914.

## **15** + *2* (*building*) **Destroyers** (*Destructores*).

### **14 Churruca class.**



1926 *Photo, by courtesy of the Ministry of Marine.*



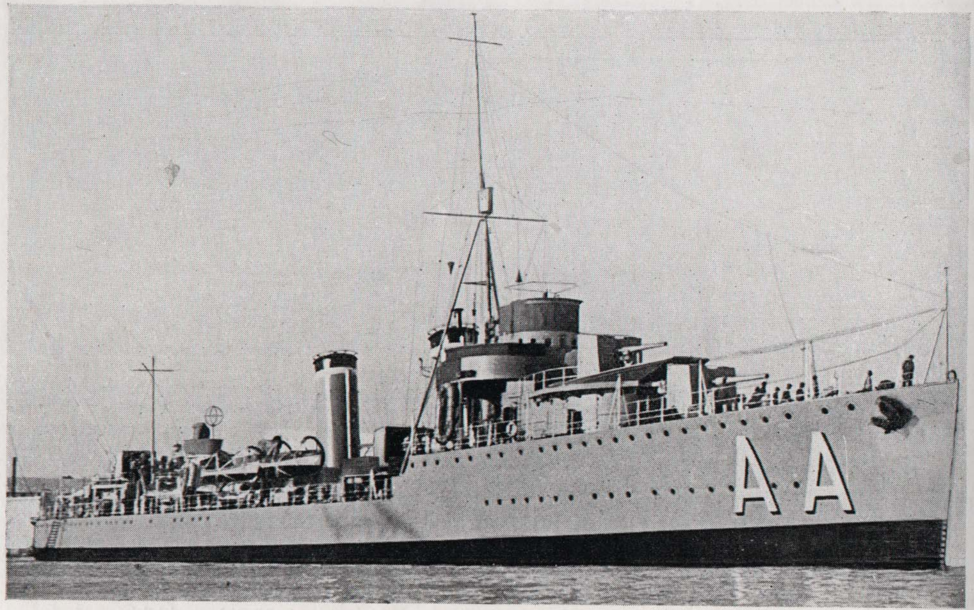
### **First Group (6).**

**SANCHEZ BARCAIZTEGUI** (July 24, 1926), **JOSÉ LUIS DIEZ** (Aug. 25, 1928), **LEPANTO** (Nov. 7, 1929), **ALCALÁ GALIANO** (April 12, 1930), **CHURRUCA** (1929), **ALMIRANTE VALDES** (Sept. 8, 1930). Appearance as above photo.

All built at Cartagena by S.E. de C.N. Displacement: 1,650 tons *normal*, 2,087 tons *full load*. Dimensions: 320 (*pp.*), 333 (*o.a.*) × 31¾ × 17 feet *max*. draught. Complement: 175. Guns: **5**—4·7 inch, **1**—3 inch AA., **4** M.G. 2 D.C. Throwers. Torpedo tubes: **6**—21 inch (tripled). Machinery: 2 sets Parsons geared turbines. 2 shafts. S.H.P.: 42,000 = 36 kts. Boilers: 4 of 3-drum type. Oil fuel: 540 tons. Radius: 4,500 miles at 14 kts.

*Notes.*—Design generally follows that of British flotilla leaders of *Scott* class. Two earliest ships of this class, originally named *Alcalá Galiano* and *Churruca*, were sold to Argentina, 1927, new units bearing same names being built to replace them. *Alm. Juan Ferrandiz* and *Ciscar* sunk in Civil War, Sept., 1936 and Oct., 1937, respectively. *Alm. Valdes* reported to have been seriously damaged by mine. *J. L. Diez* under repair at Havre, Nov., 1937.

Following initials are painted on bows: *Sanchez Barcaiztegui, SB; José Luis Diez, JD; Lepanto, LP; A. Galiano, AG; Churruca, CH; Alm. Valdés, AV; Alm. Antequera, AA; Alm. Miranda, A M; Gravina, GR; Escaño, ES; Ulloa, UL; J. Juan, JJ.*



Alm. Antequera. 1935, *courtesy Capitán M. Mille.*

### **Second Group (6).**

**ALMIRANTE ANTEQUERA** (Dec. 29, 1930), **ALMIRANTE MIRANDA** (June 20, 1931), **GRAVINA** (Dec. 24, 1931), **ESCAÑO** (June 28, 1932), **ULLOA** (July 24, 1933), **JORGE JUAN** (March 28, 1933). All as above photo. Details as in preceding column.

### **Third Group (2).**

Ciscar

**ALAVA, LINIERS.** Laid down at Cartagena by S.E. de C.N., 1936. Of same general design as 2nd group, but armament as follows: Guns: **4**—4·7 inch, **4**—25 mm. AA. (twin mounts). Torpedo tubes: **8**—21 inch (quadrupled. The 4·7 inch guns will be of a new and greatly improved model, elevating to 45°.

## 11 + *3* (*building*) **Submarines** (*Submarinos*)

*None launched up to date of publication.*

3 *Admiralty* type ; **D 1 D 2, D 3,** All under construction at Cartagena. Displacement : 1,050/1,375 tons. Dimensions : 275½ × 21¾ × 13⅕ feet (*mean*). H.P. : 5,000/1,350 = 20·5/9·5 kts. Tubes : **6**—21 inch (4 bow, 2 stern). Guns : **1**—4·7 inch, **4**—2 pdr. Diving limit, 50 fathoms. Radius *on surface* : 9,000 miles.

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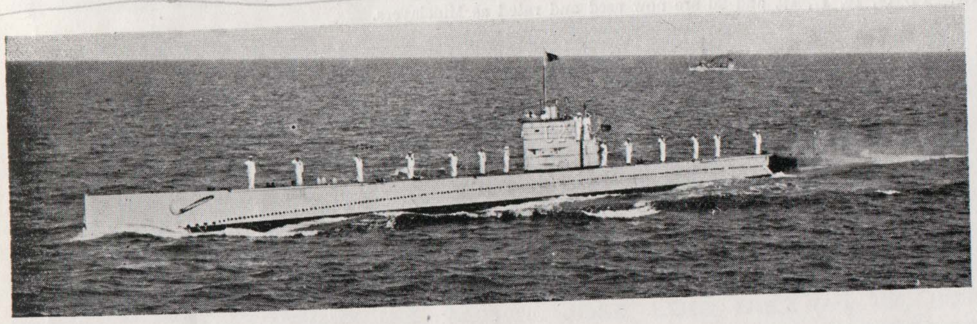
6-533 тор.

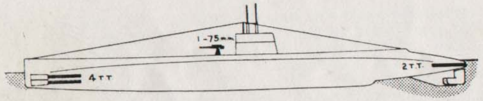


1933 *Photo, Capitán Mateo Mille.*

C 2

4 ~~6~~ *Electric Boat Co.* design : Built at Cartagena ; **C 1** (March 28, 1927), **C 2** (May 4, 1928), ~~**C 3**~~ (Feb. 20, 1929), **C 4** (July 6, 1929), ~~**C 5**~~, **C 6** (both Dec. 28, 1929). Displacement : 915 tons *on surface*, 1,290 tons *submerged*. Dimensions : 247 (*o.a.*) × 20¾ × 13½ feet. Machinery : 2 sets 6-cylinder Vickers Diesel engnes. H.P. : 2,000 = 16 kts. (*surface*), 8½ kts. (*submerged*). Guns : **1**—3 inch AA. Torpedo tubes : **6**—21 inch (4 bow, 2 stern). Diving limit, 45 fathoms, (reached) by *C* 1 on trials in 1928. Complement : 40.

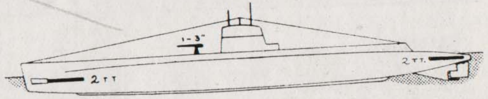
*Notes.*—About Sept. 1930 *C* 1 was named " ISAAC PERAL." The number is retained. *C* 3 was sunk at Malaga in Dec., 1936, but was salved some months later and towed to Cadiz for refit. *C* 2 and *C* 4 under repair in French ports, Nov., 1937.



1933 *Photo, Capitán M. Mille.*

5 *Electric Boat Co.* design : **B1** (1921), **B2** (1922), **B3** (1922), **B4** (1922), **B5** (1923), all laid down at Cartagena, July, 1916. Displacements : 556 tons *on surface*, 836 tons *submerged*. Dimensions : 205 (*p.p.*), 210⅓ (*o.a.*) × 18⅓ × 11¼ feet. Machinery : *on surface*, 2 sets 8-cyl. Nelseco Diesel engines, totalling 1,400 B.H.P. = 16 kts. ; when *submerged*, electric motors and batteries of 850 H.P. = 10—10½ kts. Trial results for class averaged $\frac{16·8}{10·7}$ kts. Guns : **1**—3 inch. Torpedo tubes : **4**—18 inch. Provided for by Law of 17th February, 1915. Complement, 28. Radius *on surface*, 8,000 miles at 10½ kts. ; *submerged*, 125 miles at 4½ kts.

*Note.*—*B* 6 (shown in above photo) was sunk during Civil War, September, 1936. Several of this class reported to be incapable of deep diving. *B* 1 damaged by collision with a Merchantman at Alicante in Nov., 1937.



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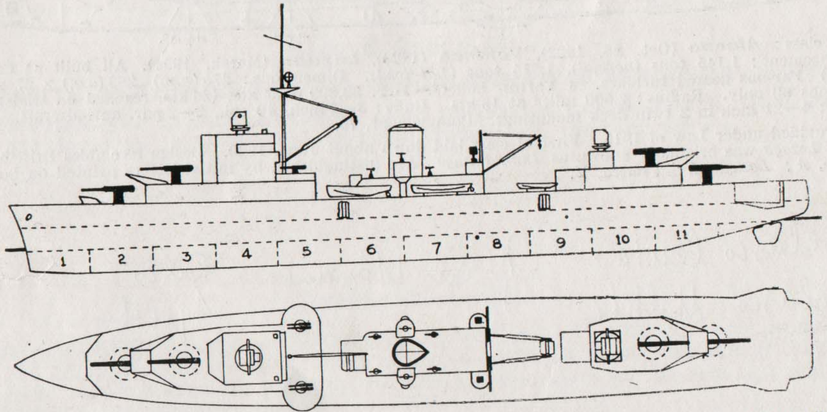
## Minelayers.

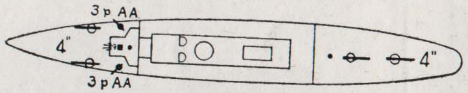


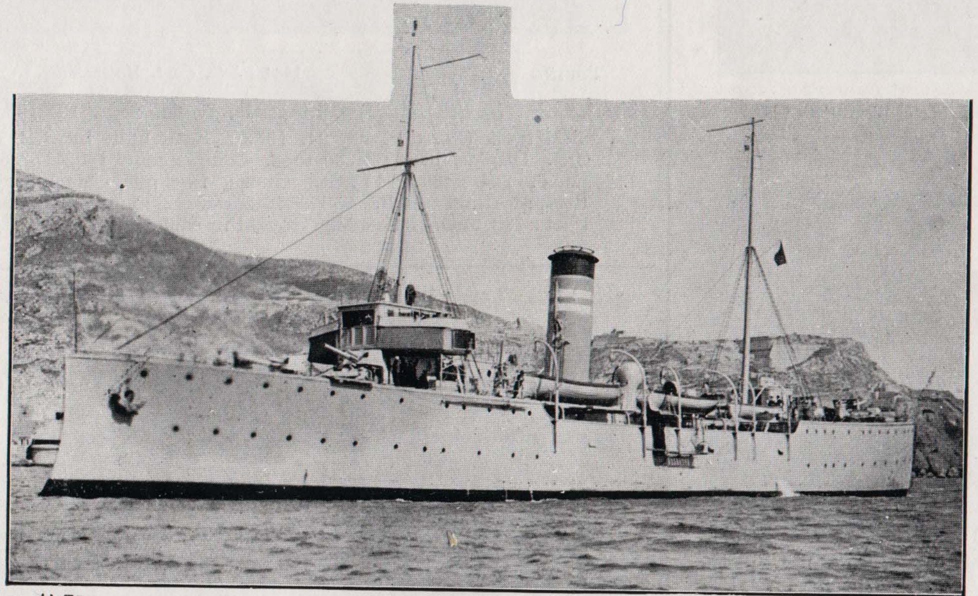
**JÚPITER** (Sept. 14, 1935), **NEPTUNO** (1936), **VULCANO** (Oct. 18, 1935), **MARTE** (June 19, 1936). All building or completing at Ferrol. Displacement : 2,000 tons. Dimensions : 302¾ (*p.p.*), 315 (*o.a.*) × 41½ × 11½ feet. Guns : **4**—4·7 inch, **4**—40 mm. AA. (twin mounts), **4**—7 mm. AA. 2 D.C. Throwers. Machinery : 2 sets Parsons geared turbines Yarrow boilers. H.P. : 5,000 = 18·5 kts. Fuel : 280 tons. Stowage for 264 mines. Complement, 123.

**EOLO, TRITÓN.** Laid down by S.E. de C.N. at Ferrol, 1936. Displacement 1,500 tons. Dimensions : 278 × 38½ × 10 feet. Guns : **4**—4 inch, **4**—40 mm. AA., **4**—13 mm. AA. Stowage for 70 mines. Speed : 18·5 kts. Design resembles Mexican *Queretaro* type.

## 1st Class Gunboats.

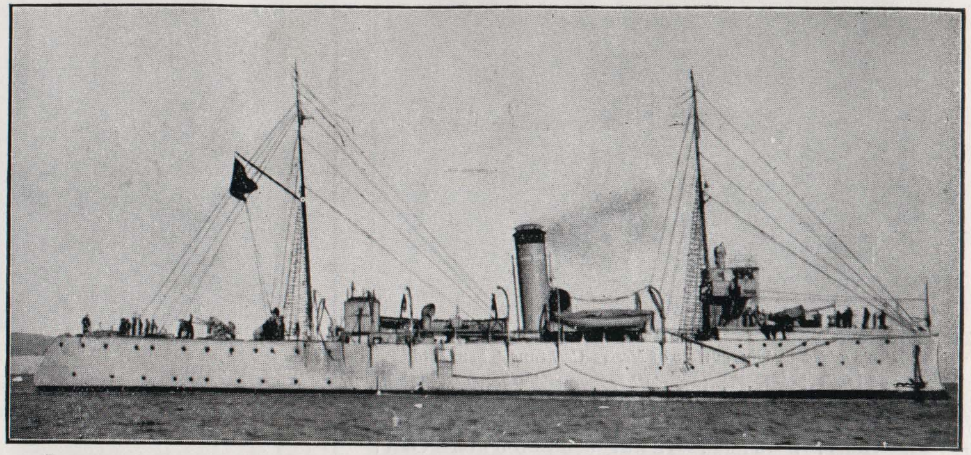
*(Cañoneros de 1ª Clase).*




DATO. 1925 *Photo, Capitán M. Mille.*

**CANOVAS DEL CASTILLO** (Jan. 21, 1922), **CANALEJAS** (Dec. 1, 1922), **DATO** (1923). Built by S.E.C.N., at Cartagena. Displacement: 1,314 tons. Complement: 220. Dimensions: 236⅓ (*p.p.*), 251⅓ (*o.a.*) × 33¾ × 11¾ feet. Guns: 4—4 inch, 2—3 pdr. AA., 2 pom-poms (for landing). No torpedo tubes. Machinery: 2 sets triple expansion. Boilers: 2 Yarrow. Designed I.H.P.: 1,700. Speed: 15 kts. Fuel: 324 tons coal *or* oil = 6,500 miles at 10·5 kts. Provided for by Law of Feb. 17, 1915, and ordered Jan., 1920. *C. de Castillo* and *Canalejas* completed 1923, *Dato* completed 1924. Differentiated by number of funnel bands. Were originally named *Antonio Canovas del Castillo, José Canalejas* and *Eduardo Dato*, but names have since been shortened. *Dato* was damaged in action in Aug. 1936, but has since proceeded to sea again.

## 1st Class Gunboats—*continued.*


LAYA. 1925 *Photo, W. A. Fuller, Esq.*

**LAURIA** (1912), **LAYA** (1910). 800 tons. Complement: 126–129. Dimensions: 213¾ × 30 × 9½ feet (*max.*) draught. Guns: 4—4 inch, 2—3 pdr. AA. Designed H.P.: 1,100 = 14 kts. Made 13·8 to 14·6 kts on trial. Yarrow boilers. Coal: 148 tons. Radius: 3,000 at 10 kts. Built under Navy Law of Jan. 7, 1908, at Cartagena.

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*Note.*—Old Seaplane Carrier *Dédalo*, though struck off effective list, is still in existence, having been laid up at Cartagena preparatory to sale.

## SPAIN—Miscellaneous

### 8 Coastguard Gunboats.

(Ex-trawlers, purchased in England and France, 1922.)

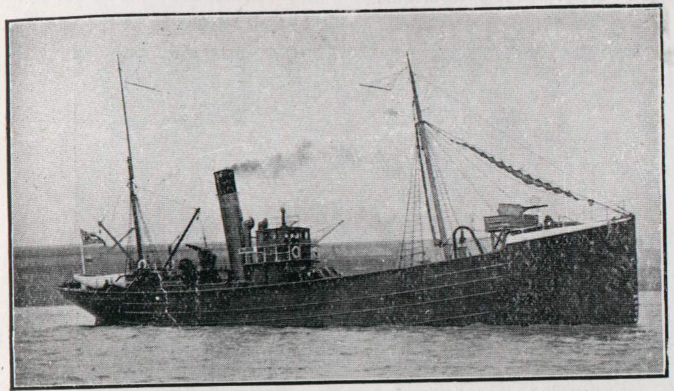
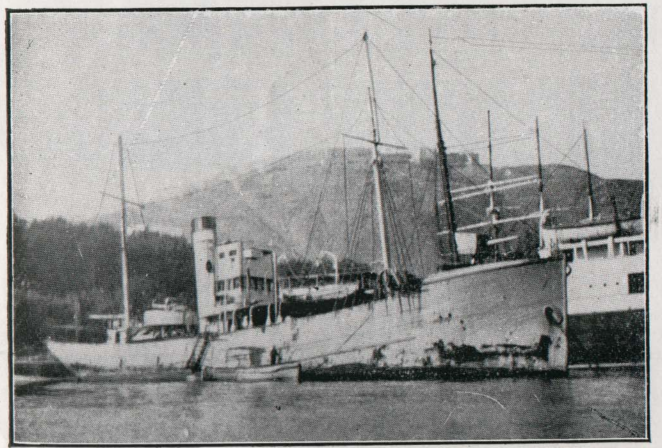


*Photo added 1925 by courtesy of Messrs. Cochrane & Sons, Ltd.*

1 *Special type* : **UAD KERT** (ex-*Rother*, ex-*Anthony Aslett*, Cochrane & Sons, Ltd., Selby, 1917). Displacement : 640 tons. Complement, 39. Dimensions : $123\frac{3}{4}$ (*p.p.*) × $23\frac{1}{2}$ × $15\frac{3}{4}$ feet. Guns : **2**—3 inch. I.H.P. 500 = 9·5 kts. Coal : 200 tons.

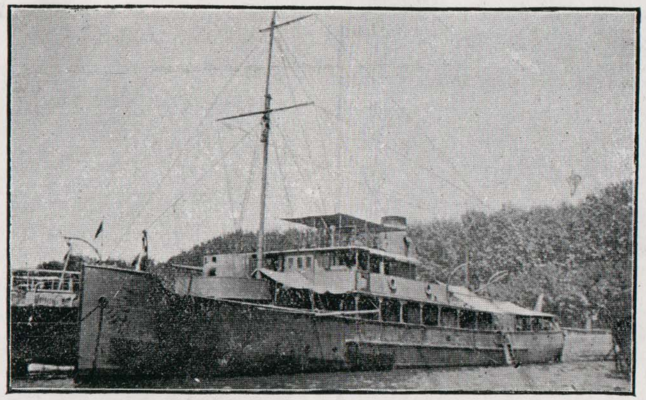
1 " *Mersey type* " **ARCILA** (ex-*William Doak*, Goole S.B. & Rep. Co., 1918). Displacement : 510 tons. Complement, 39. Dimensions : $138\frac{1}{2}$ (*p.p.*), 148 (*o.a.*) × $23\frac{3}{4}$ × $15\frac{3}{4}$ feet. Guns : **2**—3 inch. I.H.P. 500 = 10 kts. Coal : 200 tons.



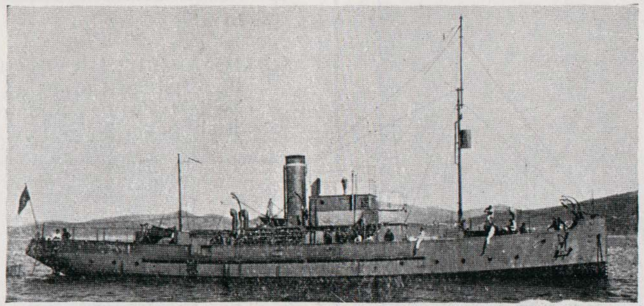
1925 *Photo, W. A. Fuller, Esq.*

3 "*Castle type*" : **UAD LUCUS** (ex-*Ness*, ex-*Alexander Palmer*, Smith's Dock Co., Ltd. 1917), **UAD MARTIN** (ex-*Erne*, ex-*John Chivers*, Bow, McLachlan & Co , 1917), **UAD MULUYA** (ex-*Wareney*, ex-*James Conner*. W. Harkness & Co. Ltd.. 1917). Displacement : 420 tons (*average*). Complement : 39. Dimensions : 125 (*pp.*) × $23\frac{1}{2}$ × $15\frac{1}{2}$ feet. Guns : **1**—3 inch. I.H.P. 500 = 9·5 kts. Coal : 200 tons.

### Coastguard Gunboats—(*continued*).



ALCÁZAR. 1925 *Photo, W. A. Fuller, Esq.*



LARACHE. 1922 *Photo.*

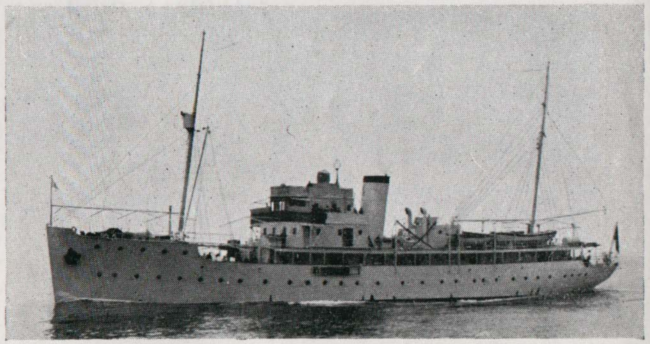
3 "*French type*" (builders not reported) : **ALCÁZAR** (ex-*Rengagé*), **LARACHE** (ex-*Poilu*), **TETUÁN** (ex-*Grognard*). Displacement : 400 tons. Complement : 41. Dimensions : $134\frac{1}{2}$ × $23\frac{1}{2}$ × $11\frac{3}{4}$ feet. **1**—3 inch. *Alcázar* has **2**—3 pdr. in addition. I.H.P. : 425 = 10 kts. Coal : 80 tons.

*Note*—14 Trawlers were requisitioned by the Insurgents at Ferrol and armed for patrol service in 1936. Government Trawler *Xauen* reported sunk, Sept. 1936

### Fishery Protection Vessels (*Guardapescas*).

**CONDESTABLE ZARAGOZA, CONTRAMAESTRE CASTELLÓ, MAQUINISTA MACIAS, CABO DE IA. MA. GARCIOLO, TORPEDISTA HERNANDEZ, MARINERO CANTE, FOGONERO BAÑOBRE, MARINERO JARANA.** Displacement : 150 tons. Dimensions : $79\frac{1}{3}$ × $19\frac{1}{2}$ × 9 feet. Guns : **1**—6 pdr. H.P. : 300 = 11 kts.

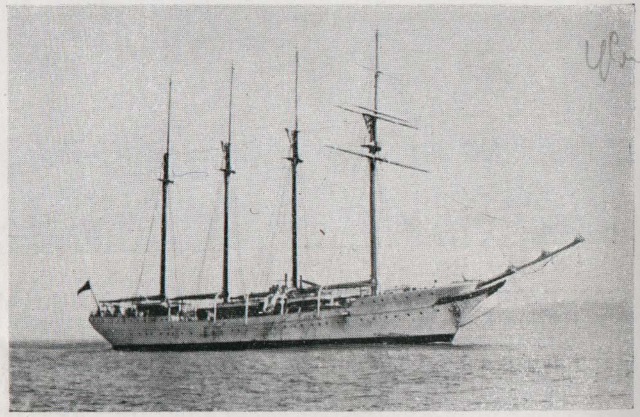
### Surveying Vessels (*Buques Planeros*).



TOFIÑO 1934 *Photo, Capt. Mateo Mille.*

**MALASPINA** (ex-*Bausá*) (Matagorda, Cadiz, Sept. 13, 1935), **TOFIÑO** (Ferrol, Aug. 21, 1933). Both built by S.E. de C.N. Displacement : 1,200 tons. Complement, 130. Dimensions : 224 × 35 × 11 feet. Guns : **1**—3 pdr. Machinery : Reciprocating. H.P. 850 = 12·5 kts. 2 Yarrow boilers. Fuel : 190 tons. 1 Seaplane carried in each.

### Training Ships (*Buques Escuelas*).

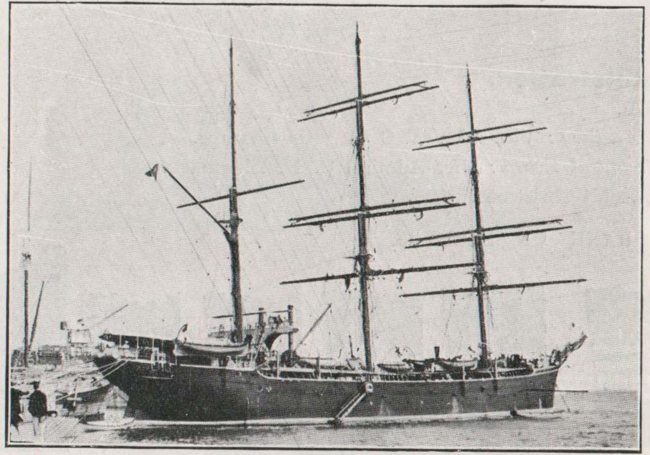


1931 *Photo.*

**JUAN SEBASTIAN DE ELCANO.** (Echevarrieta Yard, Cadiz, 5th March, 1927), completed 1928. Four-masted Schooner. Displacement at $\frac{3}{4}$ load : 3420 tons. Dimensions : $269\frac{1}{4}$ (*p.p.*), $308\frac{1}{2}$ (*o.a.*) × 43 × 23 feet *full load* draught. Guns: **4**—6 pdr. 1 Sulzer Diesel motor of 800 H.P. = 9·5 kts. 1 screw. Oil : 230 tons. Endurance : 10,000 miles at 9·5 kts. Complement : 224 + 80 cadets.

## Training Ships—*continued.*

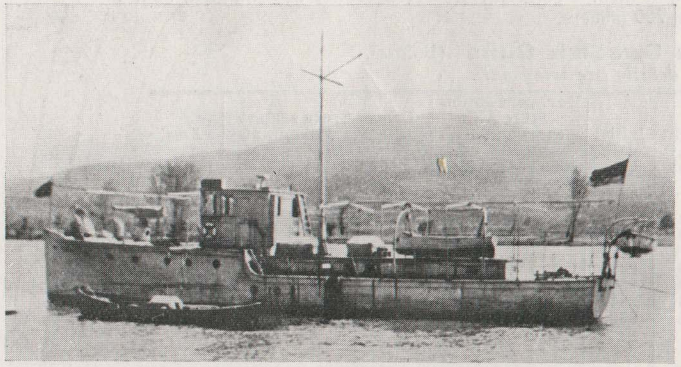
3x m kopars



GALATEA. *Photo, Manuel I. Codoner, Esq.*, 1927.

**GALATEA** (ex-Barque *Clarastella*, 1896). Purchased in Italy, 1922. 2,713 tons. Dimensions: 243 × 38¾ × 17¾ feet. Guns: 4—6 pdr. 2 auxiliary Diesel motors, combined H.P.: 900 = 8·5 kts. Fuel: 46 tons. T.S. for boys.

## River Patrol Boat

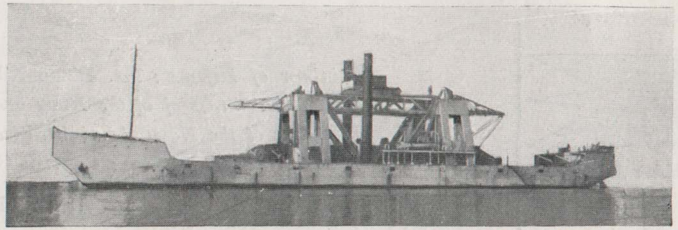


1936, *Capitán M. Mille.*

**CABO FRADERA.** Displacement: 44 tons. Complement, 11. Dimensions: 74⅔ × 14½ × 4¼ feet. Guns: 1—42 mm. H.P., 120 = 10 kts. Engaged in patrol of River Miño (Minho) on Portuguese frontier.

## Submarine Salvage Vessel.

(*Buque para salvamento de submarinos.*)

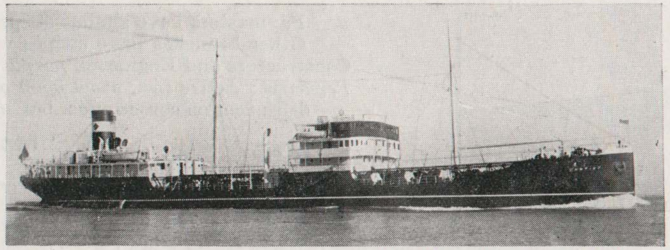


1921 *Photo, Capitán M. Mille.*

(*Attached to S/M. Station, Cartagena.*)

**KANGURO** (1916). Double hulled type, with interior docking space. Built by Werf Conrad, Haarlem, Netherlands. Displacement: 2,707 tons. Dimensions: 295¼ × 65½ × 14½ feet or (with submarine docked), 20 feet. Can dock submarine up to 151 feet long. Salvage power: Can raise 650 tons, from 27⅛ fathoms. H.P.: 1,000 = 10 kts. (9·53 trials). Fuel: 150 tons = 2,448 miles at economical speed. Guns: 4—42 mm.

## Fleet Oiler.



1935 *Photo, Capitán M. Mille.*

**PLUTÓN** (ex-*Campilo*) (Valencia, 1931). Purchased in Dec., 1934. Displacement: 7,500 tons (in light condition). Dimensions: 342½ × 53¾ × 19½ feet. 2 sets B. & W. Diesels, built in Barcelona. H.P.: 2,530 = 13·5 kts.

## Sea-going Tugs (*Remolcadores*).

**CICLOPE** (ex-*St. Clement*, purchased 1922.) Built by Crichton & Co., 1918. Displacement: 800 tons. 136 × 29 × 16½ feet. Guns: 1—3 inch. H.P. 1200 = 12¼ kts. Coal: 240 tons.

**GALICIA** (ex-*R.5*). Displacement: 350 tons. 100½ × 21 × 11 feet. H.P. 550 = 10 kts. Guns: 1—3 inch.

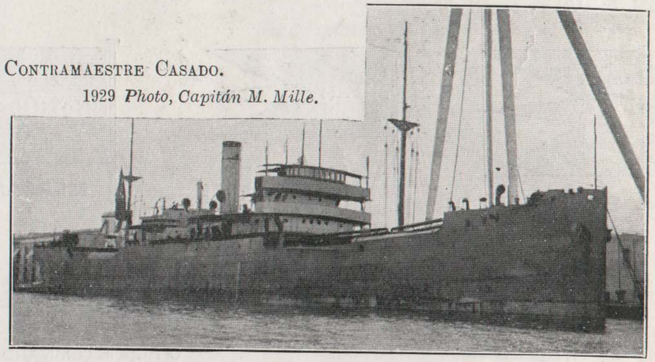
**CARTAGENERO** (ex-*H.S. 78*), **FERROLANO** (ex-*H.S. 80*), **GADITANO** (ex-*H.S. 82*). Built by Crichton & Co., South Saltney, Chester, 1918. Displacement: 300 tons. 83½ × 21½ × 10½ feet. Guns: 1—6 pdr. H.P., 420 = 10 kts.

*Note.*—There are a number of smaller tugs in service.

## Transports (*Transportes*).

**MAR CANTABRICO, MAR NEGRO** (Cia. Euskalduna, Bilbao, 1930). 6,632 tons *gross*. Dimensions: 404¼ × 54¼ × 25¾ feet. Guns: 2—5·9 inch, 8—40 mm. AA. Machinery: Diesels. B.H.P. 4,500 = 15 kts.

*Note.*—These 2 ships were captured and armed by the Nationalist forces in 1937.



CONTRAMAESTRE CASADO.
1929 *Photo, Capitán M. Mille.*

**CONTRAMAESTRE CASADO** (Armstrong Naval Yard, launched Oct. 26, 1920). Displacement: 7,275 tons. Complement: 107. Dimensions: 320 (*p.p.* and *w.l.*) 332¼ (*o.a.*) × 45 × 23⅓ feet. Guns: 4—42 mm. Machinery: 1 set triple expansion. Boilers: 3 cyl. (Howden f.d.). 1 screw. I.H.P.: 2,000 = 10·5 kts. Coal: 826 tons.

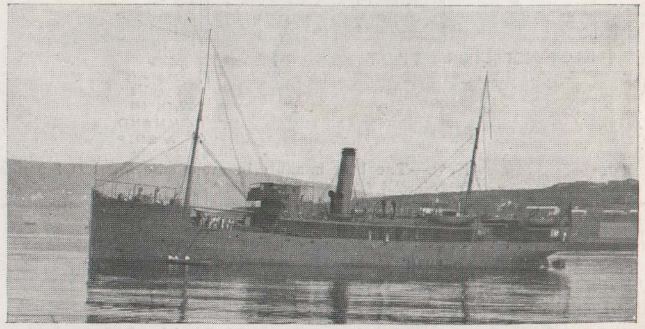
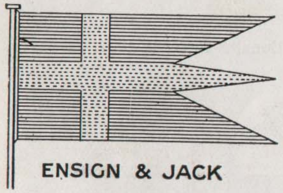
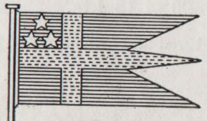


*Photo* (1919), *Capitán M. Mille.*

**ALMIRANTE LOBO** (1909). 2,505 tons. Dimensions: 259½ × 38 × 14 feet. Guns: 2—42 mm. Designed H.P.: 1,170 = 12 kts. Coal: 289 tons. *Nominal* radius: 4,540 miles at 10 kts. Complement: 69.

# ROYAL SWEDISH NAVY.


ENSIGN & JACK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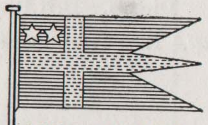
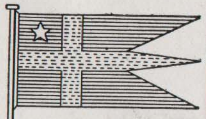
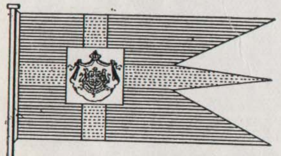
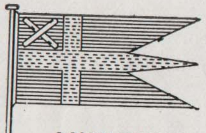
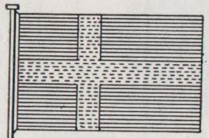

VICE ADMIRAL


REAR ADMIRAL

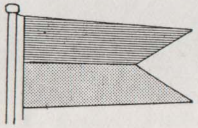

ROYAL STANDARD

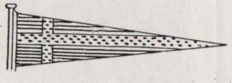

MINISTER OF DEFENCE

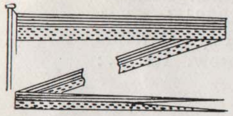

MERCANTILE

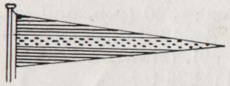
▤ *Blue*

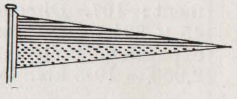
▦ *Yellow*

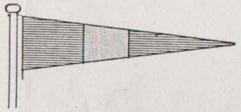

COMMODORE

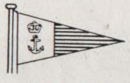

OFFICER IN COMMAND OF A DIVISION

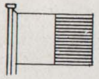

PENNANT

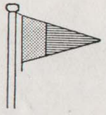

SENIOR OFFICER

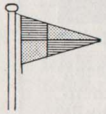

SQUADRON COMMANDER


OFFICER IN COMMAND OF A FLOTILLA


PILOT INSPECTION


PILOT


W.O. IN COMMAND OF A SHIP


FISHERY PENDANT

*Note.*—The blue is azure in every case but last 3 pendants.

## 1938 Programme.

The following new construction has been recommended for the years 1938—1943:

**3** armoured cruisers. 8,000 tons.
Guns: 6—8 inch, 8—4·7 inch. Armour: 3″–5″ side, 3½″–5″ deck. Speed: 27–29 kts.
Plan as Addenda.

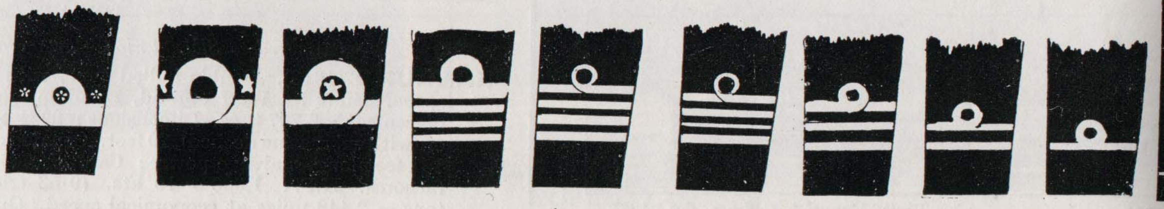
**4** Torpedo Boats. (Plan as Addenda).
**12** Motor Torpedo Boats (to be purchased abroad).
**3** Coastal Submarines.
**1** Submarine Depot Ship (to replace *Svea*).

Верх Ком [illegible]
Н.К ВС ген [illegible]
К арм ген Эренсверд
К ВВС ген Норденшельд

## Administration.

*Minister of Defence:* Hr. Janne Nilsson, M.P.
*Commander-in-Chief of the Navy and Coast Artillery:* Vice-Admiral ~~C. L. de Champs.~~ [illegible]
*President of the Navy Administrative and Technical Board:* Vice-Admiral C. H. Akermark.
*Naval Attaché (London):* Captain G. E. F. Boldt-Christmas.

INSIGNIA OF RANK ON SLEEVES.



| | Amiral. | Vice-Am. | Konter-Am. | Kommendör. | Kommendörkapten. 1 graden. | Kommendörkapten. 2 graden. | Kapten. | Löjtnant. | Under-Löjtnant. |
|---|---|---|---|---|---|---|---|---|---|
| British equivalent | *Admiral.* | *Vice-Ad.* | *Rear-Ad.* | *Commodore.* | *Captain. (Senior)* | *Captain. (Junior)* | *Commander & Lieut.-Com.* | *Lieutenant.* | *Sub-Lieut.* |

*Stripe should be same distance from cuff as in

Paymasters have similar stripes with *white* braid following uppermost stripe.

Other branches have stripes with triangular curl, and colour between stripes as follows:—Constructors and Engineers, *purple blue*; Doctors, *scarlet*.

*Personnel:* Active List, *about* 5500 officers and men. Total for Reserves cannot be estimated, as it is dependent on conscription, but includes 700 officers.

### Modern Swedish Guns (Bofors).

(*All details are unofficial*).

| Designation | | Length in calibres | Model | Weight of Gun | Weight of A.P. shot | Initial velocity | *Max.* penetration firing A.P. capped at K.C. | | | Danger Space against average warship, at | | | *Nom.* per minute |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 8000 yds. | 5000 yds. | 3000 yds. | 10,000 yards | 5000 yards | 3000 yards | |
| c/m | inches | | | tons | lbs. | ft.secs. | in. | in. | in. | | | | |
| 28 | 11 | 45 | '11 | 41 | 760½ | 2576† | 10½ | 15 | 18 | .. | .. | .. | 1.2 |
| 15.2 | 6 | 50 | '03 | 7½ | 100 | 2789† | .. | .. | 7 | 75 | 230 | 460 | 6 |
| 15.2 | 6 | 55 | '30 | 10.2 | 100 | 2950 | .. | .. | .. | .. | .. | .. | 8 |
| 12 | 4.7 | 50 | '11 | 3¾ | 46½ | 2822 | .. | .. | .. | .. | .. | .. | .. |
| 12 | 4.7 | 45 | '94 | 2 | 46½ | 2430 | .. | .. | 3½ | .. | .. | .. | 8 |
| 12 | 4.7 | 45 | '24 | 2.6 | 46 | 3620 | .. | .. | .. | .. | .. | .. | .. |

Guns marked † in the velocity column fire Bofors special nitro-compound.

### Torpedoes.

21 in., and 18 in. Torpedoes manufactured at Karlskrona.

### Colour of Ships.

Light Grey all over, excepting S/ms and some training ships. Displacements "Standard."

### Navy Estimates.

1936–37: 47,875,340 kronor.
1937–38: 38,000,000 „

### Mercantile Marine.

From "Lloyd's Register," 1937 figures.
1249 vessels of 1,501,969 gross tonnage.

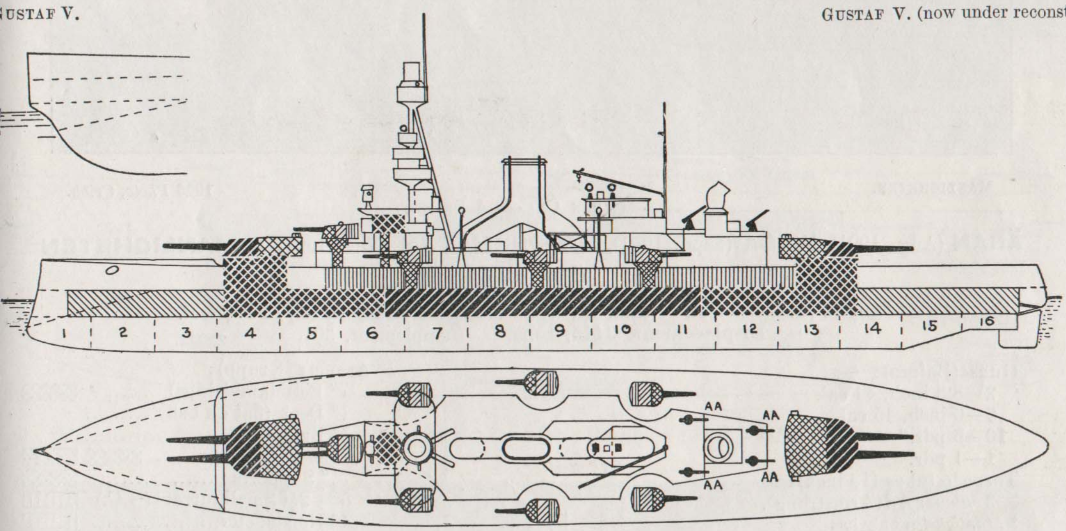
**SVERIGE** (Götaverken, Göteborg. May, 1915).
**DROTTNING VICTORIA** (Götaverken, Göteborg. Sept., 1917).
**GUSTAF V** (Kockum Co., Malmö. January 1918).

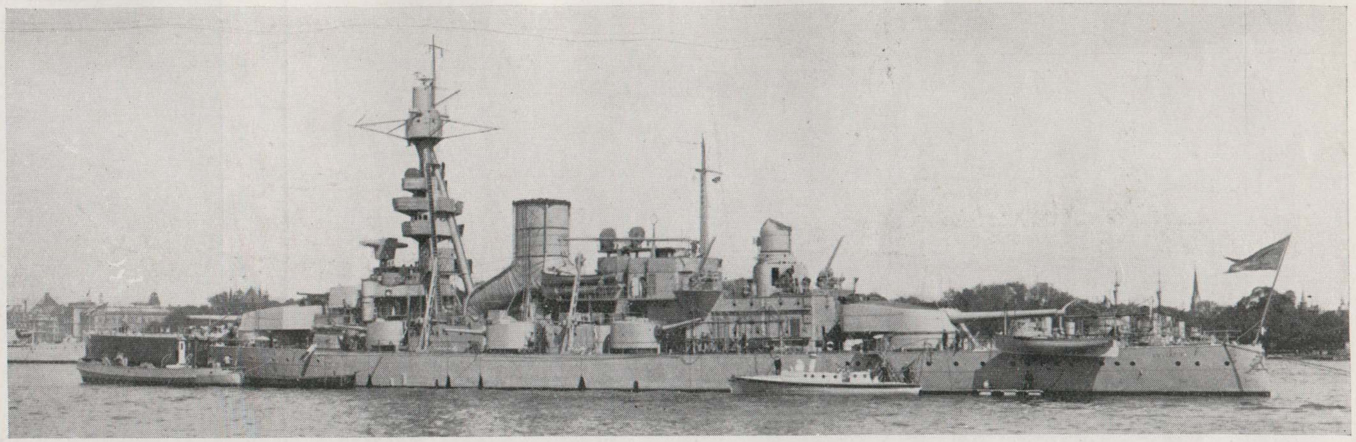
isplacement: 7,080, 7,120 and 7,275 tons, respectively. Complement: 450.

ength (*w.l.*) { *Sverige*, 392·8 feet. / *D.V.* & *G.V*, 396·6 feet } Beam, 61 feet. *Max.* draught, 22 feet

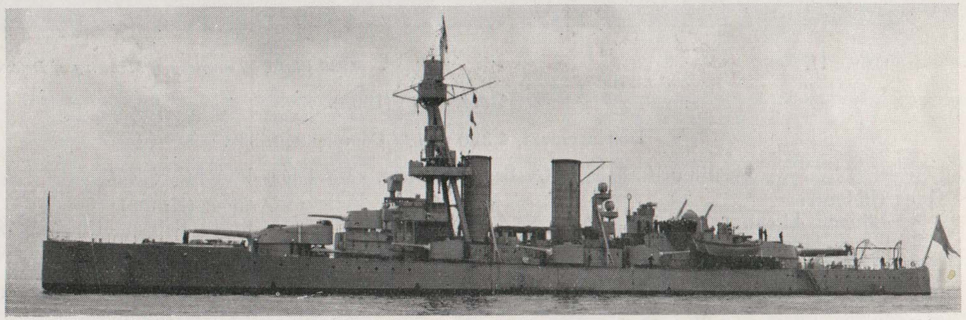
Guns (Bofors):
- **4**—11 inch 45 cal.
- **8**—6 inch, 50 cal.
- **4**—3 inch, AA.
- **2**—6 pdr.
- **9**—M.G.

Armour: (Carnegie and Bofors).
- 8″ Belt (amidships)...... ▨
- 6″—3″ Belt (ends)... ▧
- $1\frac{5}{8}$″ Deck (slopes) ......
- 4″ Redoubt.............. ▥
- 8″ Big gun turrets...... ▦
- 6″ Barbettes ......... ▩
- 5″—$2\frac{1}{2}$″ Small turrets ▨ ▥
- 7″ Conning tower ...... ▦

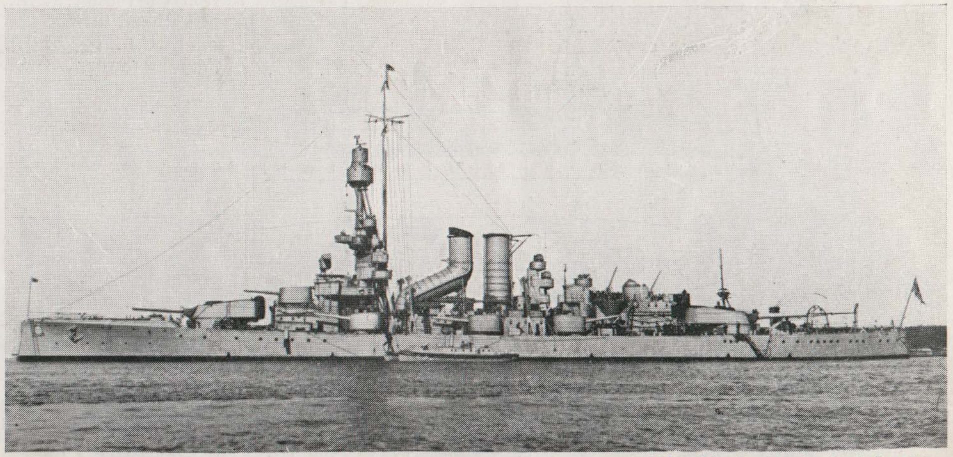

USTAF V.


GUSTAF V. (now under reconstruction.)

1934 *Hr. Registrator Ossi Janson.*


DROTTNING VICTORIA.

1937, *Fighting Ships.*


SVERIGE.

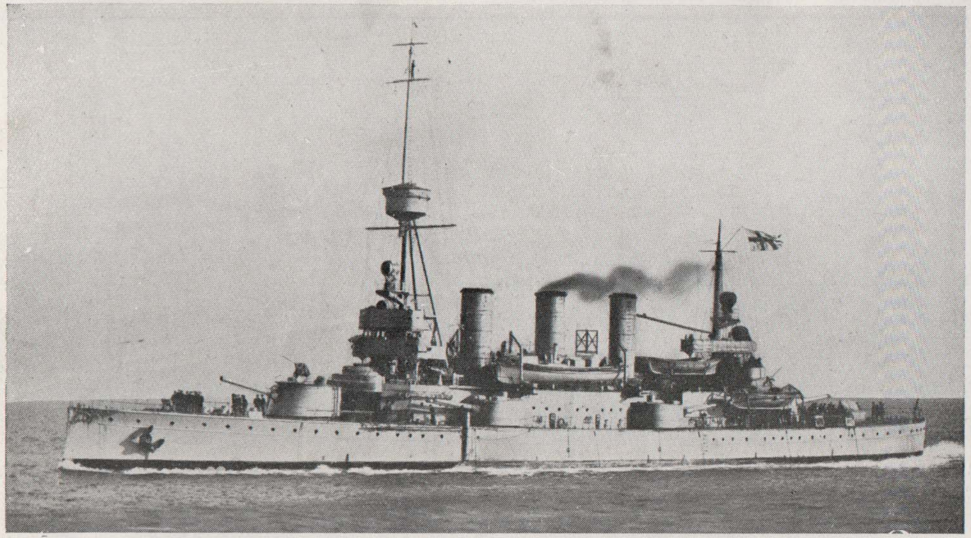
1936, *Hr. Registrator Ossi Janson.*

Machinery: In *Sverige*, Curtis turbines by Kockum Co., 4 screws; in *Gustaf V* and *Drottning Victoria*, Westinghouse geared turbines by the Motala Company. 2 screws. Boilers: 12 Yarrow. Designed S.H.P. 20,000 in *Sverige*, 22,000 in *D. Victoria* and *Gustaf V*=22·5 kts. Trials: 23 to 23·6 kts. Coal: *Normal* 350 tons; *maximum* 700 tons+100 tons oil.

*Gunnery Notes.*—11 inch guns load in 17 seconds. Turrets somewhat cramped; are divided by partition bulkheads.

*Armour Notes.*—11 inch gun shields are 8″ on fore side, 4″ on side, $4\frac{3}{4}$″ rear. Smaller gunshields are 5″ front, 3″ sides.

*General Notes.*—Appearance originally as *Drottning Victoria* but with light tripod foremast. *Gustaf V.* reconstructed 1929–30 when funnels were trunked into one and upperworks considerably remodelled. In *Sverige* fore funnel was inclined aft to clear the bridgework and second funnel retained, and after superstructure altered, 1932–33 *Drottning Victoria* reconstructed in 1935. *Gustaf V* again taken in hand for modernisation, 1937. Appearance will be altered.



OSCAR II. 1930 *Photo, by courtesy of Ministry of Defence.*

## OSCAR II (1905).

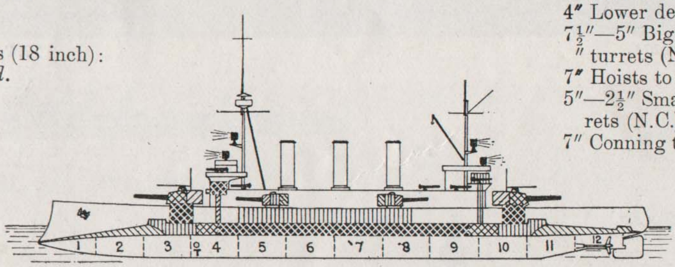
Displacement, 4,320 tons. Complement, 339.

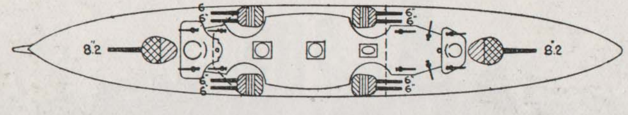
Length (*w.l.*) 313⅔ feet. Beam, 50½ feet. *Maximum* draught, 18 feet.

Guns (Bofors):
- **2**—8·3 inch, 44 cal.
- **8**—6 inch, 50 cal.
- **2**—3 inch AA.
- **8**—6 pdr.
- **1**—1 pdr.

Torpedo tubes (18 inch):
- **2** *submerged.*

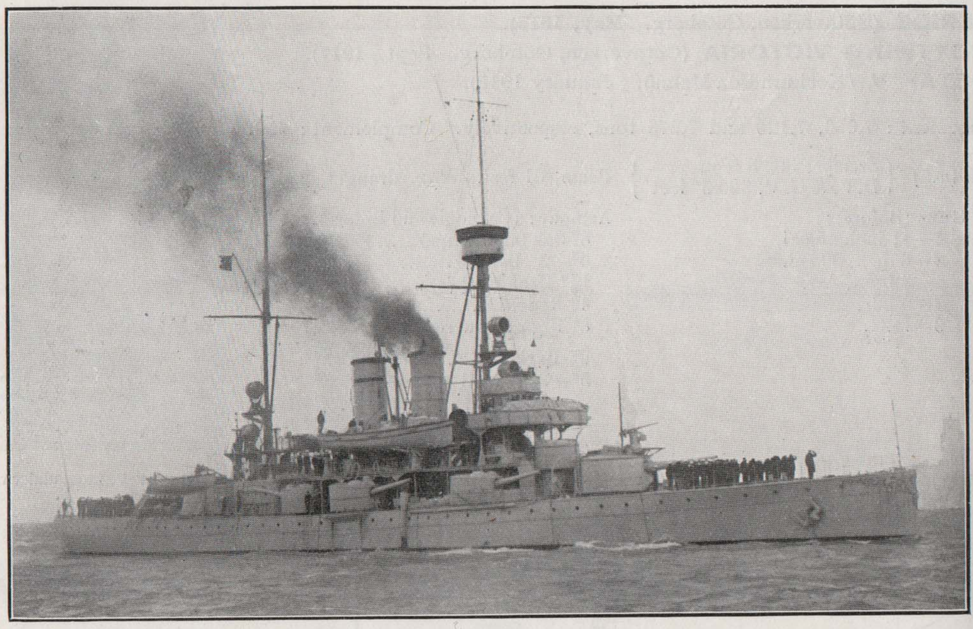
Armour (Krupp):
- 6″—4″ Belt (amidships) ▩ ▥
- 2″ Deck (slopes) ..............
- 6″ Bulkheads ..................
- 4″ Lower deck redoubt ...... ▥
- 7½″—5″ Big gun turrets (N.C.) ...... ▩ ▨
- 7″ Hoists to these.............. ▩
- 5″—2½″ Small turrets (N.C.)... ▨ ▥ ▧
- 7″ Conning tower.............. ▩





Machinery: 2 sets 4 cylinder triple expansion. 2 screws. Boilers: 10 Yarrow. Designed H.P. 9000 = 18·3 kts. Coal: *normal* 350 tons; *maximum* 500 tons = 2950 miles at 10 kts.

*Notes.*—Four searchlights carried—one on each bridge, and one on each mast. Built by Lindholmen Co., 1905–07. On *trial*: 9,400 = 18·96 kts.



MANLIGHETEN. 1926 *Photo, Cribb.*

(ÄRAN CLASS—4 SHIPS).

## ~~ÄRAN~~ (Aug., 1901), WASA (Sept., 1901), TAPPERHETEN (Nov., 1901) & MANLIGHETEN (Dec., 1903).

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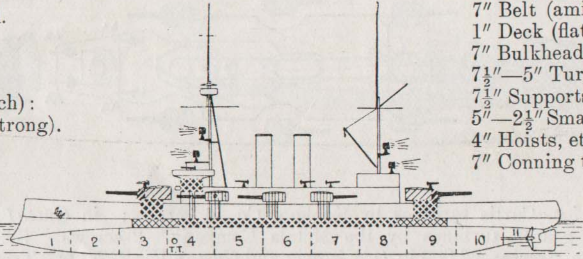
Length, (*w.l.*) 287 feet. Beam, 49¼ feet. *Maximum* draught, 16¾ to 17¾ feet.
Displacement, 3415, tons. Complement, 301.

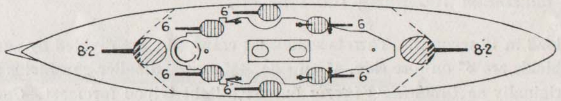
Guns (Bofors):
- **2**—8·3 inch, 44 cal.
- **6**—6 inch, 45 cal.
- **10**—6 pdr.*
- **1**—1 pdr.

Torpedo tubes (18 inch):
- **2** *submerged* (Armstrong).

* *Manligheten* only has 8—6 pdr.

Armour (Krupp):
- 7″ Belt (amidships) ...... .. ▩
- 1″ Deck (flat on belt) .........
- 7″ Bulkheads ..................
- 7½″—5″ Turrets ...... ▩ ▨
- 7½″ Supports .................. ▩
- 5″—2½″ Small turrets (N.C.) ▥
- 4″ Hoists, etc. .................. ▥
- 7″ Conning tower ........... ▩





Machinery: 2 sets triple expansion. 2 screws. Boilers: 8 Yarrow. Designed H.P. 7400 = 17 kts. Coal: *maximum*, 300 tons. Endurance: 2000 at 10 kts.

*Notes*—Where built: *Äran*, Lindholmen; *Wasa*, Bergsund; *Tapperheten* and *Manligheten*, Kockum. Completed: *Aran*, *Wasa*, 1902; *Tapperheten*, 1903; *Manligheten*, 1904.

# AIRCRAFT CRUISER (*Flygplankryssare*).

**GOTLAND.** (Götaverken. Sept. 14, 1933).

Displacement: 4,775 tons. Complement, 480.

Length, (*w.l.*) 426½ feet. Beam, 47¾ feet. *Max.* draught, 16 feet.

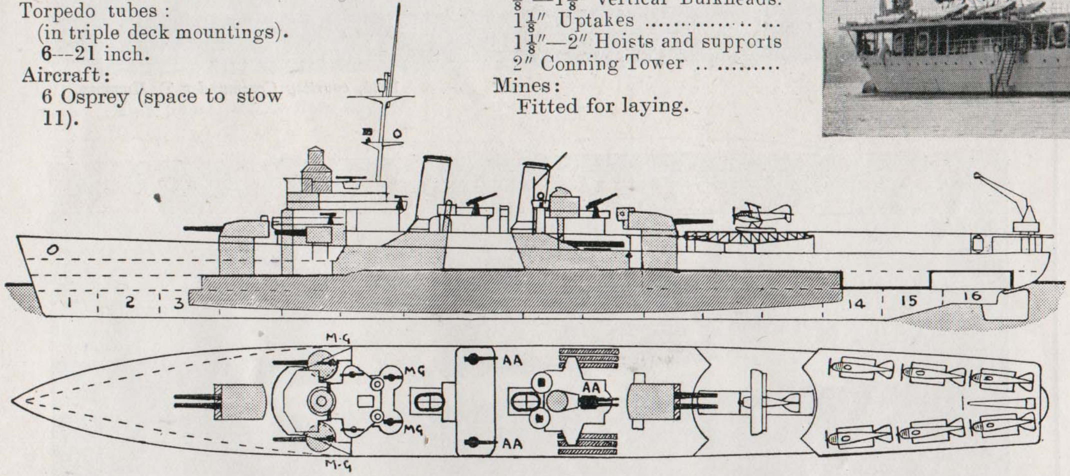
Guns: (Bofors).
- 6—6 inch, 50 cal. (1930 Model).
- 4—3 inch AA. (1928 Model).
- 8—25 mm. AA.

Torpedo tubes:
- (in triple deck mountings).
- 6—21 inch.

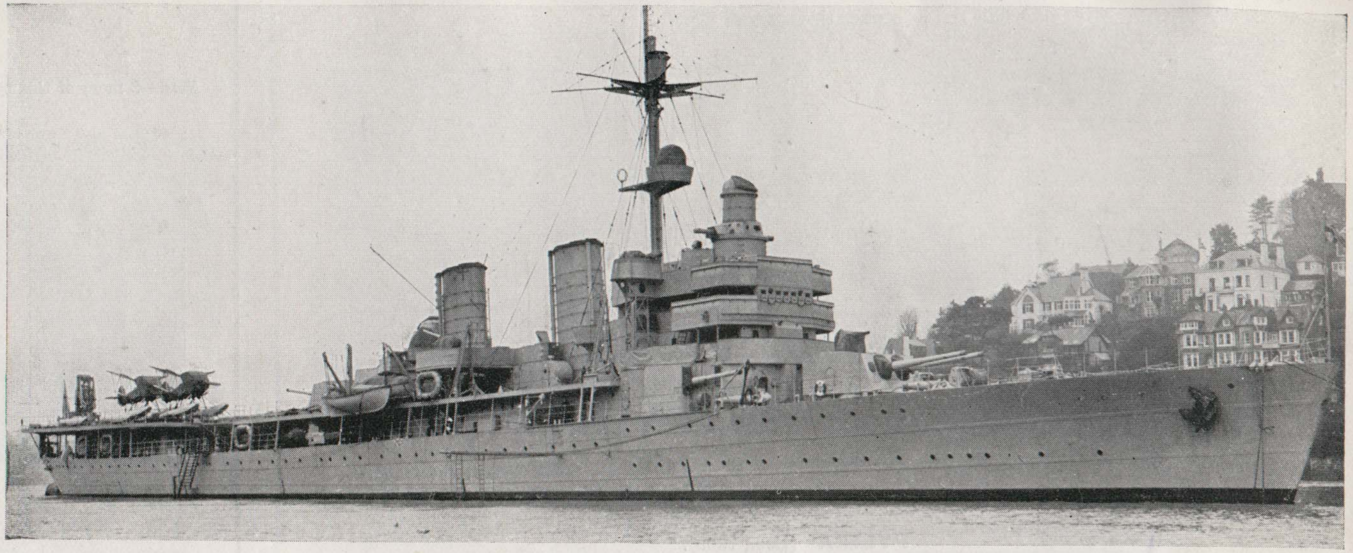
Aircraft:
- 6 Osprey (space to stow 11).

Armour:
- 5/8"—1⅛" vertical Bulkheads.
- 1⅛" Uptakes ..................
- 1⅛"—2" Hoists and supports
- 2" Conning Tower .. .........

Mines:
- Fitted for laying.



Machinery: 2 sets De Laval geared turbines. 2 shafts. Designed S.H.P. 33,000 = 27 kts. Boilers: 4.

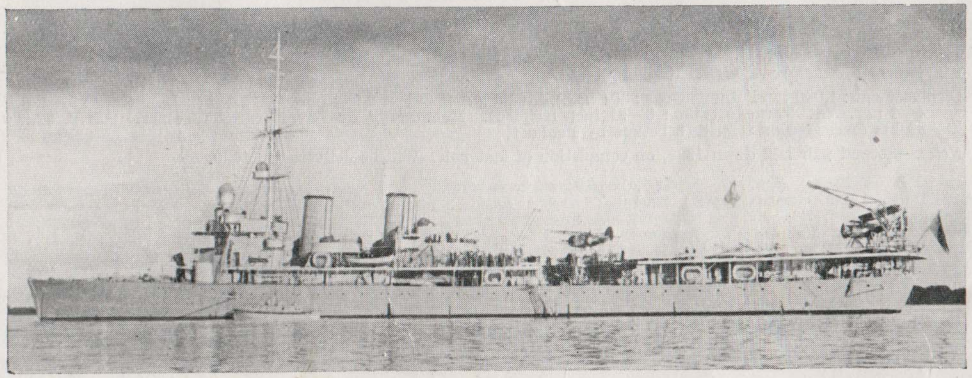


1936, "*Fighting Ships.*"

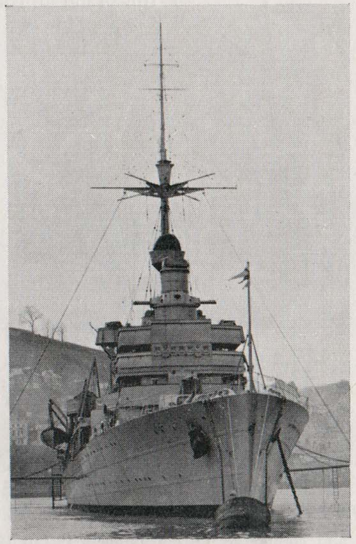
*General Notes.*—The first cruiser designed to act as an aircraft carrier, and represents a well thought out and exceedingly useful type of warship. Cost exceeded £900,000, by date of completion (1935).

*Gunnery Notes.*—6 inch guns can be elevated to 60°.

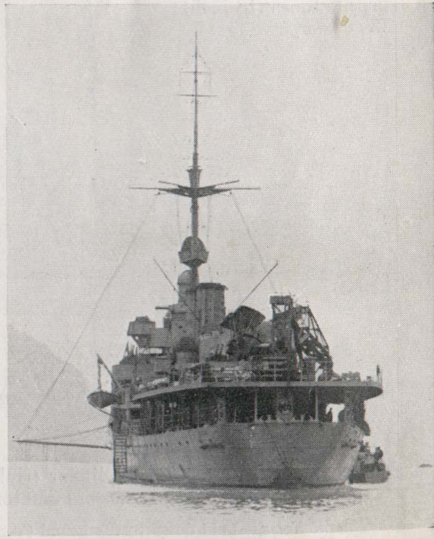
*Aircraft Notes.*—Each plane is mounted on a launching trolley, which can be driven by its own motor on to a catapult and connected up to launching mechanism. By this system aircraft can be launched at intervals of 10 minutes.



1935.



1936, "*Fighting Ships.*"



1936. "*Fighting Ships.*"

## Armoured Cruiser (*Pansarkryssare*).

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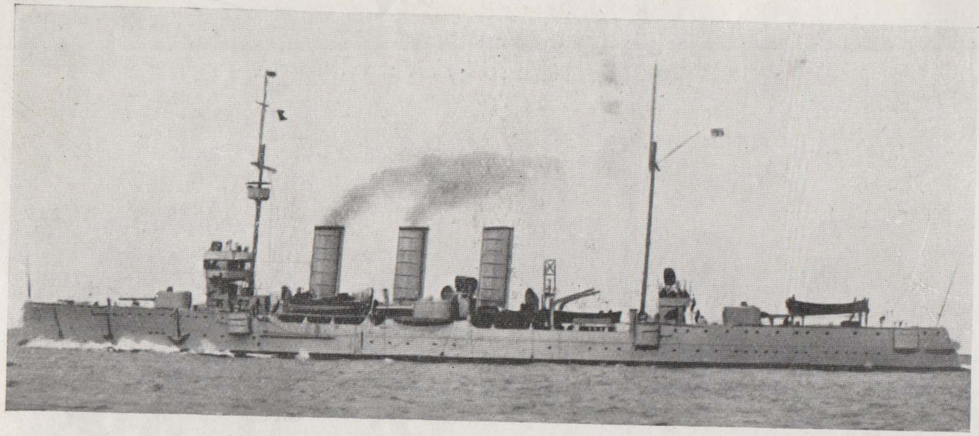


FYLGIA.

1931 *Official Photo.*

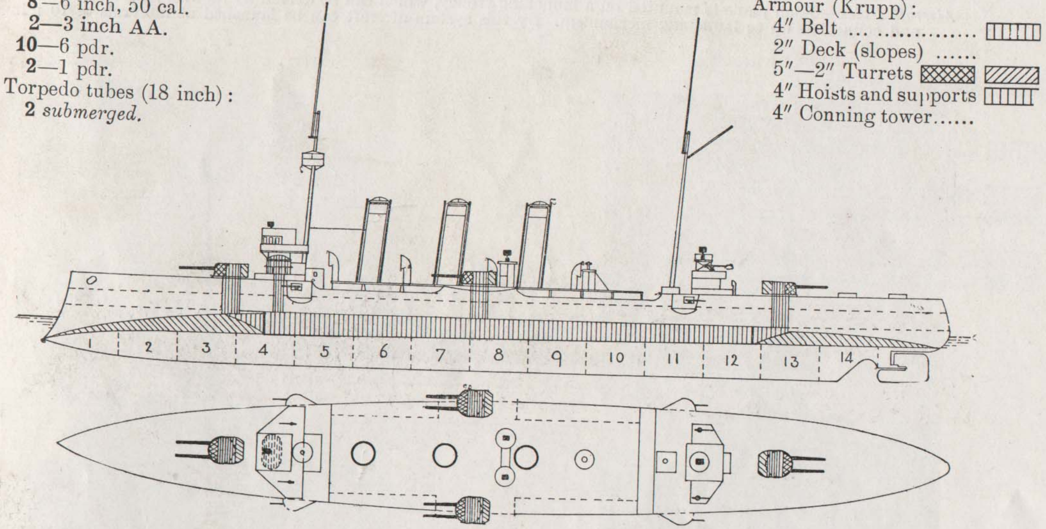
### FYLGIA (Dec., 1905).

Displacement, 4,310 tons. Complement, 341.

Length (*w.l.*), 377⅔ feet. Beam, 48½ feet. *Max.* draught, 20⅔ feet.

Guns (Bofors).
**8**—6 inch, 50 cal.
2—3 inch AA.
**10**—6 pdr.
2—1 pdr.
Torpedo tubes (18 inch):
2 *submerged.*

Armour (Krupp):
4″ Belt .................. ▥
2″ Deck (slopes) ......
5″—2″ Turrets ▩ ▨
4″ Hoists and supports ▥
4″ Conning tower......



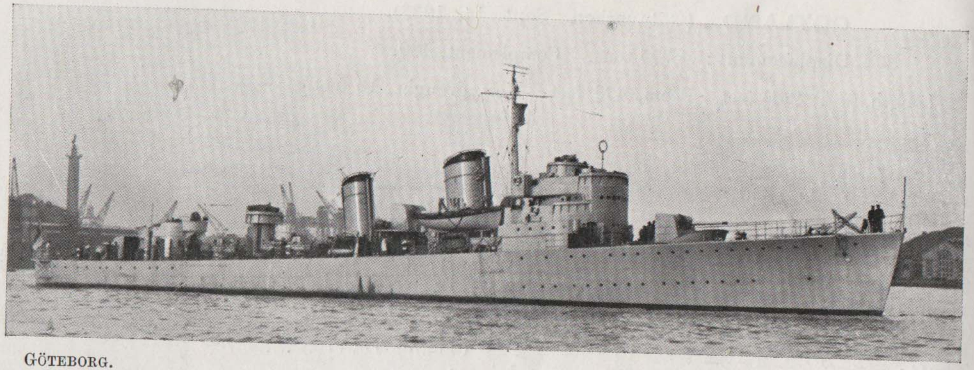
Machinery: 2 sets 4 cylinder triple expansion. 2 Screws. Boilers: 12 Yarrow. Designed H.P. 13,000 = 21·5 kts. Coal: *normal* 350 tons; *maximum* 900 tons = 5770 miles at 10 kts.

*General Notes.*—Laid down by Bergsund Co., at Finnboda, in 1903, and completed 1907. Trials: 12,440 H.P. = 22·7 kts. Machinery by builders. Bow sponsons removed 1926-27.

## 14 + 2 (*Building*) Destroyers (*Jagare*).

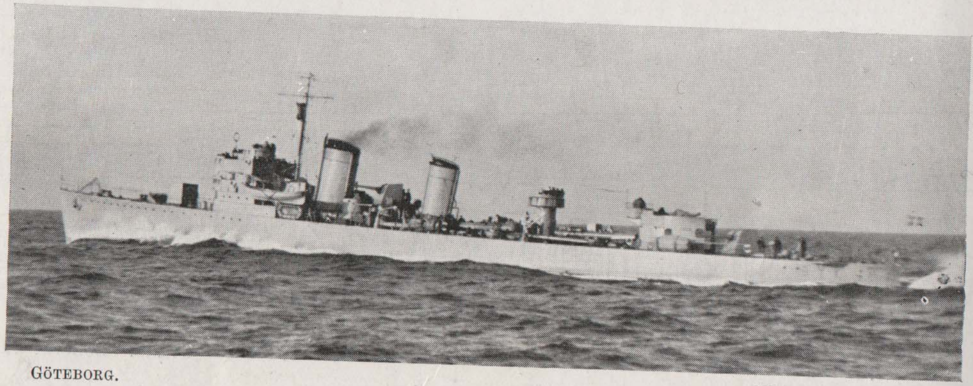
### 4 6 Göteborg class.

*Note.*—2 more of this type will be laid down as soon as *Karlskrona* and *Malmö* are launched.



GÖTEBORG.

1936, *courtesy Commander T. Hagman.*



GÖTEBORG.

1937, "*Var Flotta.*"

1 *Götaverken*; **Göteborg** (Oct. 14, 1935).
2 *Karlskrona*: **Stockholm** (March 24, 1936), **Karlskrona** (building).
1 *Eriksberg* (*Göteborg*): **Malmö** (building).

Gälve
Norrköping

Displacement: 1,040 tons. Dimensions: 304 (*w.l.*), 310⅓ (*o.a.*) × 29½ × 9 feet (*mean*), 12 feet (*max.*). Guns: **3**—4·7 inch, **4**—1 pdr. AA. Torpedo tubes: **6**—21 inch (tripled). Machinery: De Laval geared turbines. S.H.P. 32,000 = 39 kts (exceeded on trials). 3 boilers by Penhoët.

*Notes.*—Second pair laid down 1936, on completion of first pair. Will be delivered in 1939.

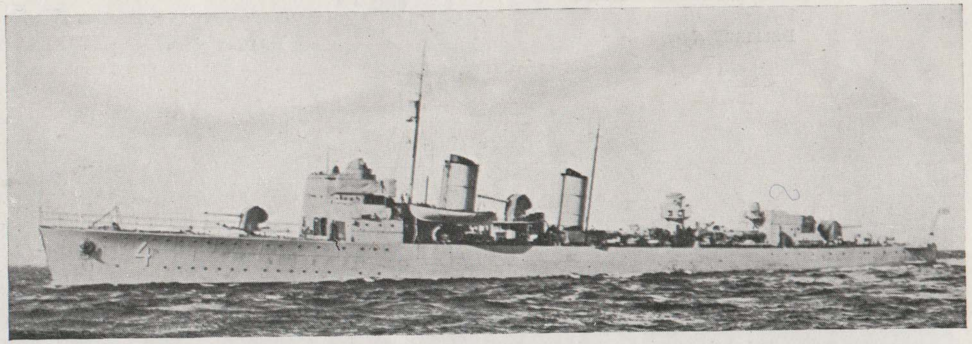
13 тыс Erensköld
Kalmar
Hälsingborg
Sundsvall
Visby
(сп 42-3) 1135т 39 кн 3-120 4-40 4-25мм 6-533
спр. Öland (45 сп)
2) Uppland (46)
1800т 35 кн 4-120 7-40 6-535

2 куплены в 40 г в Ита
Psilander (26)
950 ~~1250т~~ 35 кн 4-120
Puke такой же
(тип Sella 28 ор)

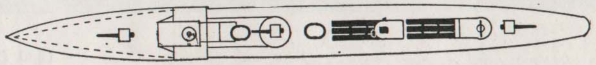
2 -"- Romulus 638т 34уз 2-100 6-20 4-450

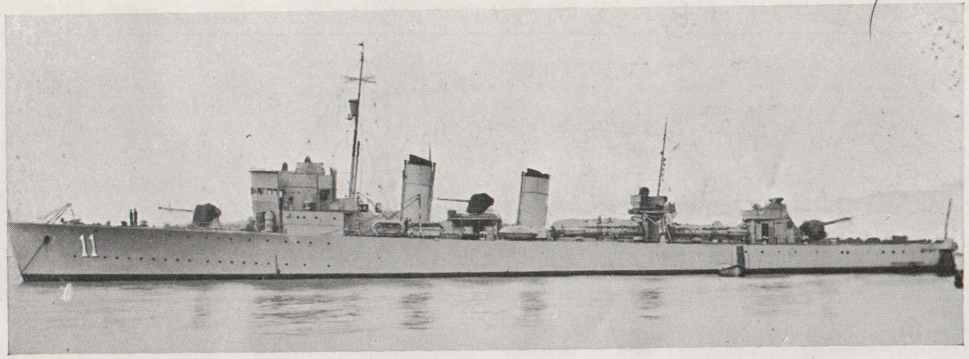
## Destroyers.—*continued.*

## 4 Ehrensköld class.



Klas Uggla. (*Klas Horn* similar). 1933 *Photo, Official.*



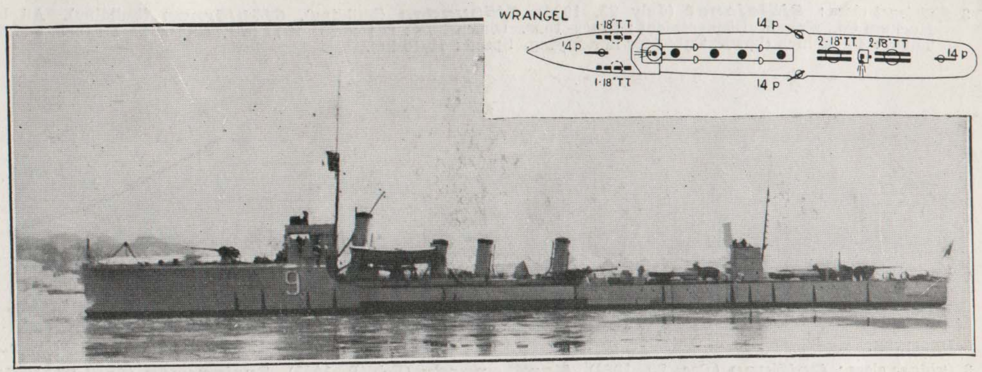


Ehrensköld (Now No. 1 (*Nordenskjöld* similar). 1930, *Hr. Registrator Ossi Janson.*

4 *Ehrensköld* class: **Ehrenskold** (Sept. 25 1926), **Nordenskjöld** (June 19, 1926. Built by Götaverken, Göteborg and Kockum Co., Malmö, respectively. Displacement: 940 tons. **Klas Horn** (June 13, 1931) **Klas Uggla** (June 18, 1931), Laid down 1928—by Kockum Co., and at Karlskrona D.Y., respectively. Displacement: 1,020 tons. Dimensions: 293 (*w.l.*), 300 (*o.a.*) × 29¼ × 10½ feet. Armament: 3—4·7 inch and 2—1 pdr. AA. guns; 6—21 inch torpedo tubes in triple deck mountings. De Laval geared turbines. H.P.: 24,000 = 35 kts. Fuel (oil only): 150 tons. Radius of action: 600 miles at full speed; 1,600 miles at 20 kts. Complement: 125. Estimated cost: Kr.7,150,000 each. First pair completed in 1927 Second pair in 1932.

| Pendant numbers: | *Ehrensköld* (1). | *Nordenskjöld* (2). | *Göteborg* (5). |
|---|---|---|---|
| | *Klas Horn* (3). | *Klas Uggla* (4). | *Stockholm* (6). |

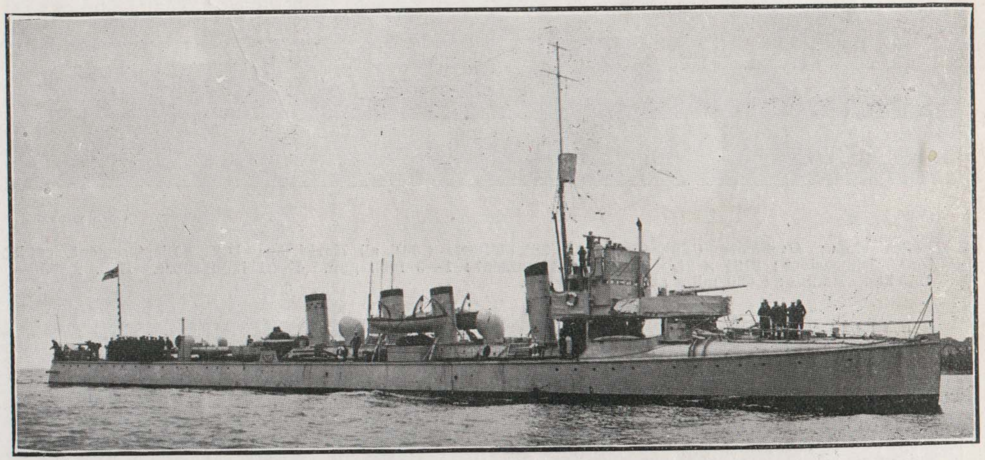
## 2 Wrangel class.



Wrangel. исключен из флота 47г 1928, *Hr. Registrator Ossi Janson.*

2 *Wrangel* class: ~~**Wrangel**~~ and ~~**Wachtmeister**~~ (Lindholmen Co., Göteborg, both launched 1917.) 465 tons. Dimensions: 232¾ × 22 × 9¼ feet. Armament: 4—3 inch, 2 machine guns, 6—18 inch torpedo tubes in two twin-deck mountings and two single mountings, P. and S. in forecastle. Designed S.H.P., 11,000 (*n.d.*), 13,000 (*f.d.*) = 34 kts. Reported to have attained 34·8 kts on trials. Have De Laval geared turbines. Oil: 103·5 tons. Complement: 81. Completed early 1918. Pendant numbers are 9 and 10, respectively.

## 6 Hugin and Wale classes.



Vidar. 4 ? 1928, *Hr. Registrator Ossi Janson.*

2 *Hugin* class: 1) **Hugin** (1911), **Munin** (1912). 360 tons. Dimensions: 215¾ × 20⅔ × 8½ feet. Guns: 4—3 inch, 2 machine. Torpedo tubes: 4—18 inch. 4 Yarrow boilers. Curtis turbines. S.H.P., 10,000 = 31 kts. Fuel: 90 tons coal + 1½ tons oil. Endurance: 800 miles at 15 kts. *Hugin* built by Götaverken Co., and *Munin* by Kockum Co., Malmö. Distinctive numbers: *Hugin* 7, *Munin* 8.

4 *Wale* class:—**Wale** (1907), **Ragnar** (1908), ~~**Sigurd**~~ (1908), **Vidar** ('09). 360 tons. Dimensions: 215⅓ × 20⅔ × 9 feet. Armament: *Wale*, 2—3 inch, 4—6 pdr., 2 machine; other boats, 4—3 inch, 2 machine; 4—18 inch tubes in all. S.H.P.: 8,000 = 30·5 kts. 4 Yarrow boilers. Coal: 90 tons. Radius of action: 920 miles at 15 kts. *Sigurd* built by Lindholmen Co., other three by Kockum Co. Hull on Thornycroft lines.

Distinctive numbers: *Wale*, 3; *Vidar*, 4; *Ragnar*, 5; *Sigurd*, 6. *Sigurd* has no chart house on bridge

1) ?

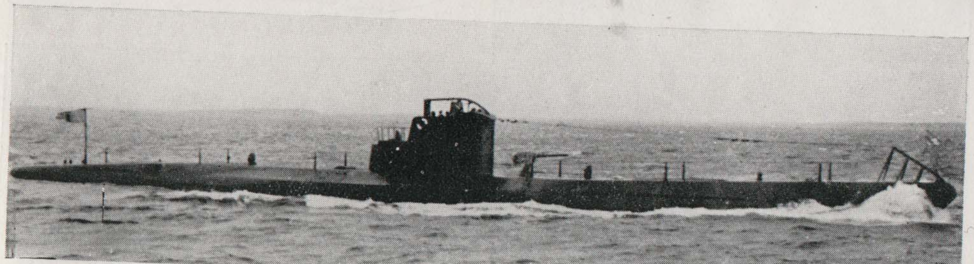
1) исключены из состава флота 47г

2) ??

# 14 (+ 2 building) Submarines.

## Submarines.

9 3 *Sjölejonet* class : **Sjölejonet** (July 25, 1936), **Sjöhunden** (building), **Sjöbjörnen** (building). All by Kockum Co., Malmö. Displacement : 580/~~—~~ 720 tons. Dimensions : 204 × 20½ × 11 feet. Guns : 1—4·1 inch, 2 M.G. Tubes : 4—21 inch (bow). Fitted for minelaying. Speed : 15/10 kts.

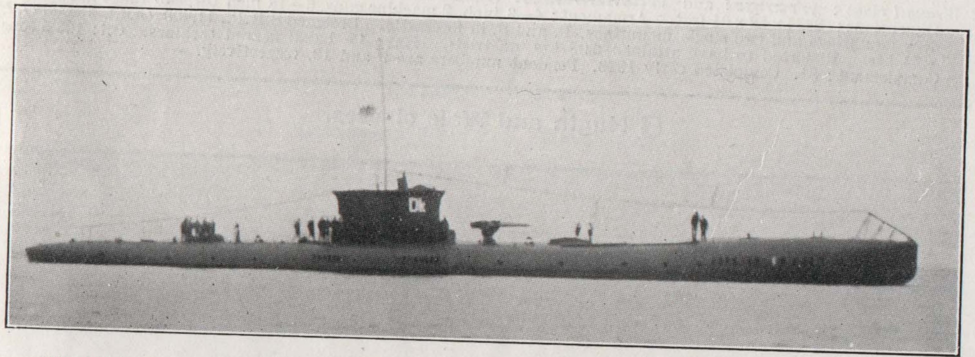


DELFINEN.

1936, " Var Flotta."

3 3 *Delfinen* class : **Delfinen** (Dec. 20, 1934), **Nordkaparen** (Feb. 9, 1935), **Springaren** (April 27, 1935). Displacement : 540/720 tons. Dimensions : 199 × 20⅓ × 11 feet. Guns : 1—4·1 inch, 1—57 mm. AA. Tubes : 4—21 inch (bow) Fitted for minelaying. Speed : 15/10 kts.

МЗ

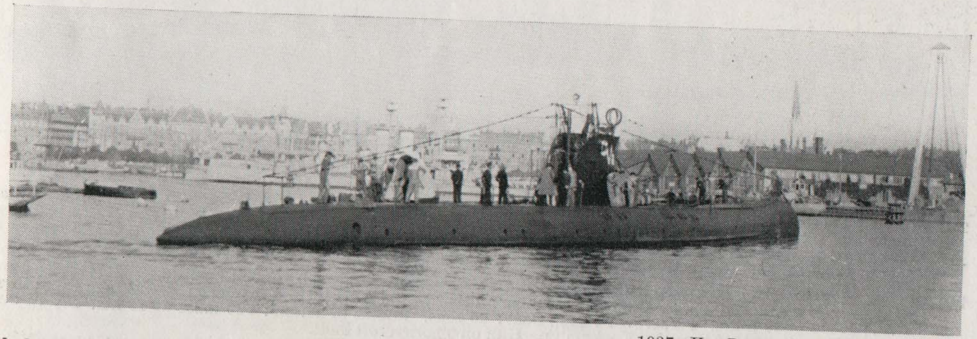


DRAKEN.

1929 Photo.

1 3 *Draken* class : **Draken** ('26), 1) **Gripen** ('28), + **Ulven** ('30), all Karlskrona D.Y. Displacement, 667/850 tons. Dimensions : 213¼ × 21 × 11¾ feet. Armament : 1—3 inch gun. 4—21 inch tubes. H.P. 2,800/— = 15/9 kts. Radius : 5,600 miles at 10 kts. *surface.*

ʊ 16.4.43



1937, *Hr. Registrator Ossi Janson.*

1 **Valen** (May 6, 1925), built at Karlskrona. Fitted for laying mines on the Normand-Fenaux system. Design generally follows that of *Bävern* class. Displacement : 581/730 tons. Dimensions : 186 × 23¼ × 10 feet. Other details as *Bävern.*

МЗ

1) исключена из списков 47 г

Возможно в серию

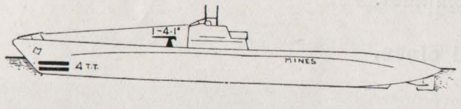
~ 3505 tons

1 тр. вт 2? из Gr (41) 580/1 2-40 2н

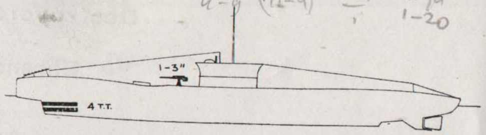
9 мал 3 МЗ Neptun (42) 543/1 1-40 2
Najad

мал 4-1
4-9 (M1-4) 367/1 шум 1-20

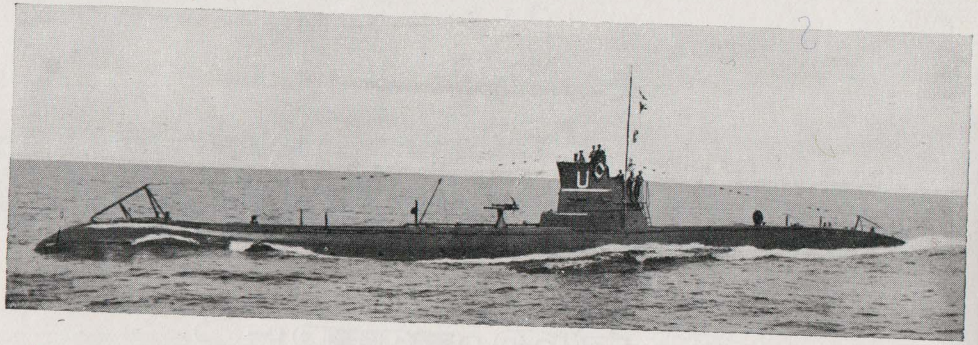
## Submarines—*continued.*



DELFINEN *class.*



DRAKEN *class.*

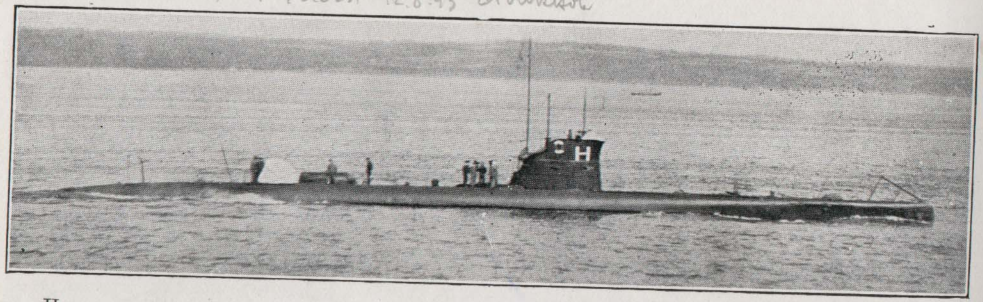


UTTERN.

1930 Photo, "Var Flotta."

3 *Bävern* class : 1) **Bävern,** 2) **Illern,** 1) **Uttern** (1921), built by Kockum Co., Malmö. Displacement : 429/640 tons. Dimensions : 189⅓ × 18½ × 10 feet. H.P. 2,800 = 15 kts. *on surface* ; 9 kts. *submerged.* Guns : 1—6 pdr. AA., 1 M.G. Tubes : 4—20·8 inch (bow). 8 torpedoes carried. Radius 300 miles at 15 kts. *surface*, 54 miles at 6 kts. *submerged.*

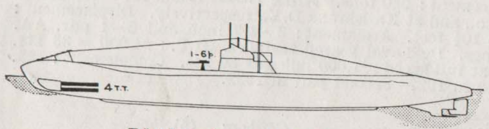
2) + Yllern 12.8.43 [illegible]



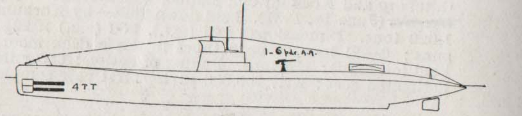
HAJEN.

1924, *Official Photo.*

3 *Hajen* class : **Hajen** (1917), **Sälen** (1918), **Valrossen** (1918), built by Kockum Co., Malmö. Displacement : 392/600 tons. Dimensions : 175 × 16½ × 11½ feet. Guns : 1—6 pdr. AA. Tubes : 4—18 inch. H.P. 2,800/— = 15/9 kts.



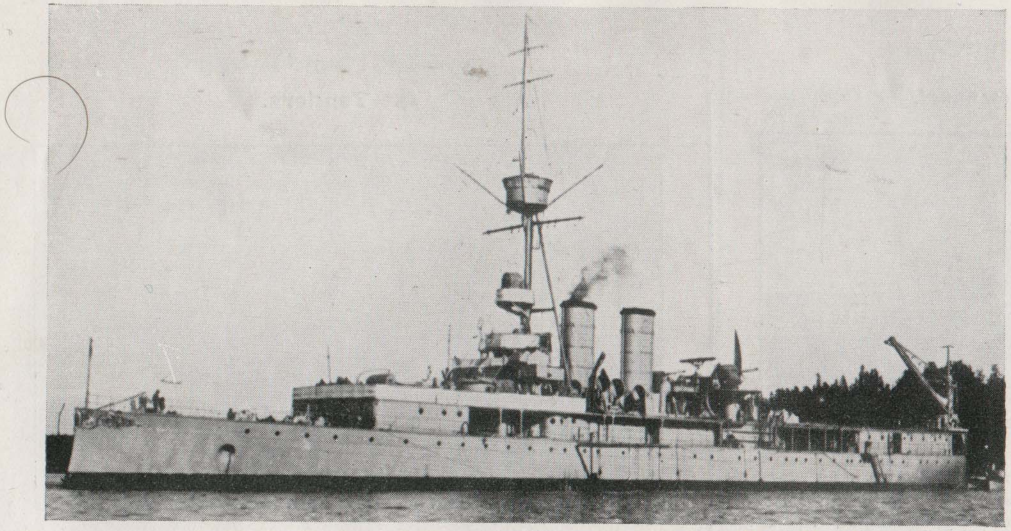
BÄVERN *class* and VALEN.



HAJEN *class.*

Distinctive letters, painted on C.T., are : Bv, *Bävern* ; De, *Definen;* Dk, *Draken* ; Gr., *Gripen* ; Hj, *Hajen* ; Il, *Illern* ; Nk, *Nordkaparen* ; Sa, *Salen* ; Sj, *Sjölejonet* ; Sp, *Springaren* ; Ut, *Uttern* ; Uv, *Ulven* ; Va, *Valen* ; Wa, *Valrossen.*

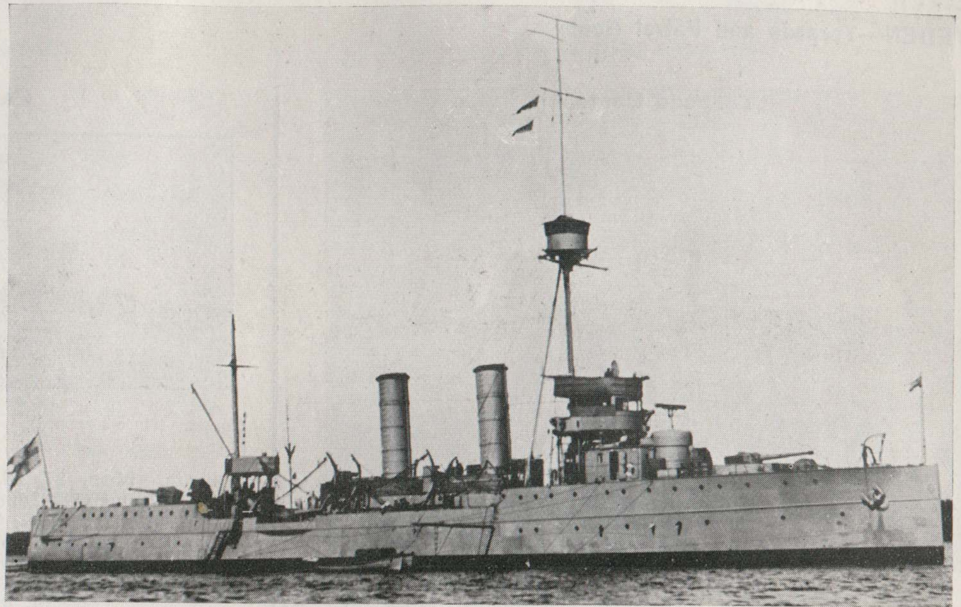
## Seaplane Carrier.



1936, *Miss Hjördis Karlsson.*

**DRISTIGHETEN** (Lindholmen Co., 1900). 3,270 tons. Dimensions: 285 × 48½ × 17 feet. Guns: 4—3 inch AA. H.P. 5,000 = 16 kts. Coal: 310 tons. Is an old battleship converted into an Aircraft Tender and Depot Ship. Carries 3 aircraft.

## Minelayer.



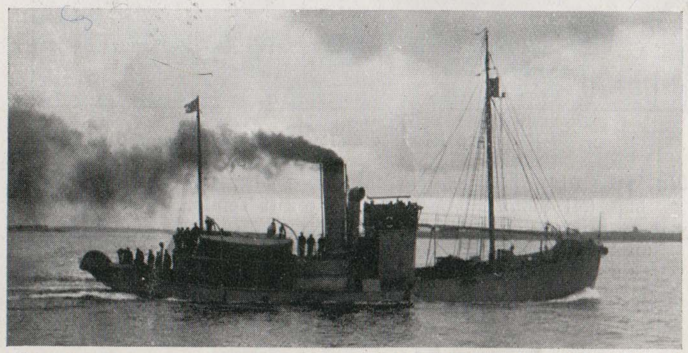
(Being refitted.) 1936, *Hr. Registrator Ossi Janson.*

**CLAS FLEMING** (1914). 1,570 tons. Complement, 175. Dimensions: 263 × 34 × 14 feet. Guns: 4—4·7 inch, 50 cal., 4 M.G. Parsons turbines. H.P. 7,000 = 20 kts.

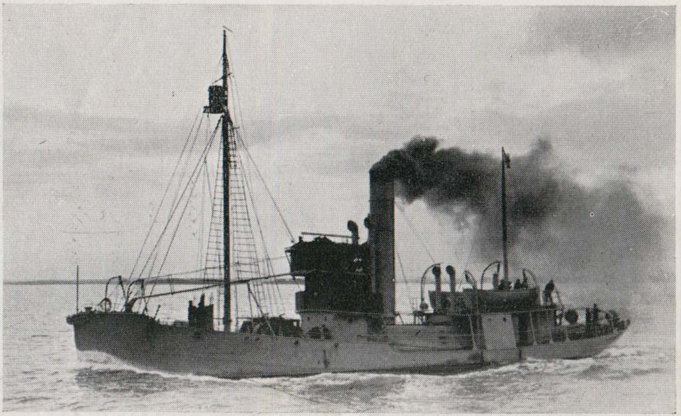
## 6 Minesweepers.

*Photo wanted.*

**ARHOLMA, LANDSORT.** (Both Karlskrona, 1936). Displacement: 372 tons *standard*, 442 tons *full load*. Complement, 37. Dimensions: 178½ (*w.l.*), 186 (*o.a.*) × 24¾ × 7 feet *max.* Guns: 2—3 inch, 1—25 mm. AA. 2 D.C.T. Machinery: Reciprocating. I.H.P. 2,000 = 17·5 kts. Oil fuel: 60 tons.



STARKODDER. *Added 1936, courtesy "Var Flotta."*



STYRBJÖRN. *Added 1936, courtesy "Var Flotta."*

**STARKODDER** (ex-*Graham*, 1925), **STYRBJÖRN** (ex-*Klo*, 1923). Ex-whalers, purchased in 1935. Displacement: 200 tons. Dimensions: 99¾ × 23 × 3¼ feet, and 104 × 22 × 3¼ feet, respectively. Armament not reported. Machinery: Reciprocating. I.H.P. 750 = 15 kts.

*Photo wanted.*

**Nos. 1** and **2** (Ekensberg Varv, Stockholm, 1936). Displa ment: 61 tons *standard*, 64 tons *full load*. Complement, Dimensions: 97¾ (*w.l.*), 100¾ (*o.a.*) × 14 × 3½ feet *max.* Guns: 2—8 mm. AA. Machinery: Diesels. B.H.P. 600 16 kts. Fuel: 3 tons.

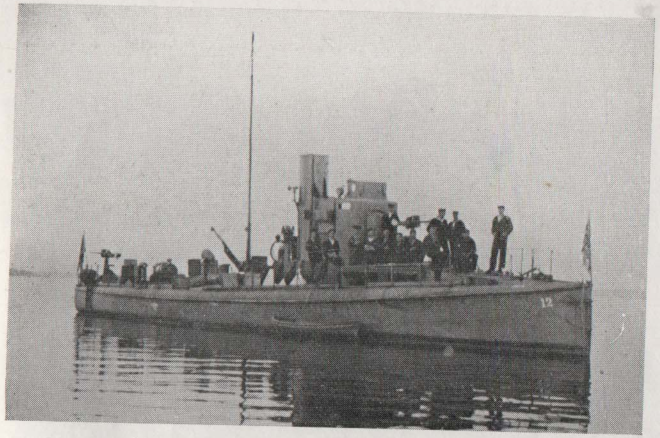
~~4шт T-15-T18 (41) 22 40км 1-20 2-~~

Торп катера T-21 (41-43) 27т 1-20 2-58
11шт ..... 4
T-31

2шт. T-3 и T-4 тип Vosper 25т 41км 2 пул

4шт T-11 - T-14 тип M.A.S 17т 47уз 1пул

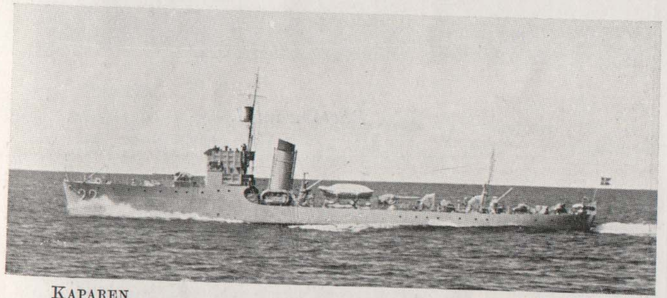
## Torpedo Boats.



**N: r. 5, 6, 7, 8, 9,** (1906-08). Displacement, 50 tons. Dimensions: 106 × $12\frac{3}{4}$ × $6\frac{1}{2}$ feet. Armament: 1—1 pdr., 2—18 inch tubes. H.P. 800= 21 kts. Coal: 22 tons. Complement, 14.

**N: r. 3, N: r. 4.** Built by Messrs. Thornycroft, at Hampton-on-Thames, 1925. Usual 55-ft. type C.M.B. with smoke screen apparatus. 11 tons. 1 M.G., 2—18 inch torpedoes. H.P.: 750 = 41 kts.

## 28 Patrol Boats (*Vedettbåtar*).

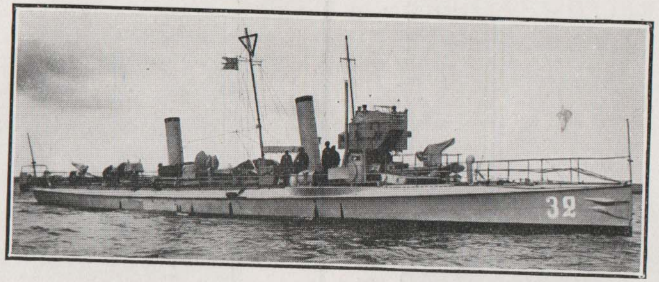


KAPAREN

1935, *Official.*

4 boats. **JÄGAREN** (Dec., 1932), **KAPAREN** (March 3, 1933), **SNAPPHANEN** (Nov. 2, 1933), **VÄKTAREN** (April 25, 1934). All built at Karlskrona. Displacement: 292 tons. Complement, 37. Dimensions: 177 × $19\frac{1}{2}$ × $8\frac{1}{4}$ feet. Guns: 2—3 inch, 2—25 mm. AA. 2 D.C.T. Machinery: De Laval geared turbines. S.H.P.: 3,200 = 24 kts. Normand boilers. Oil fuel: 50 tons. Identification Nos. 21 to 24, respectively.

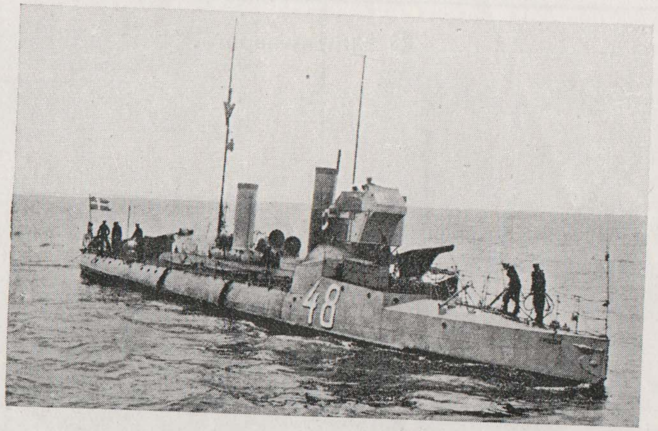
## Patrol Boats—*continued.*



No. 32. (Since scrapped).

1928, *Hr. Registrator Ossi Janson.*

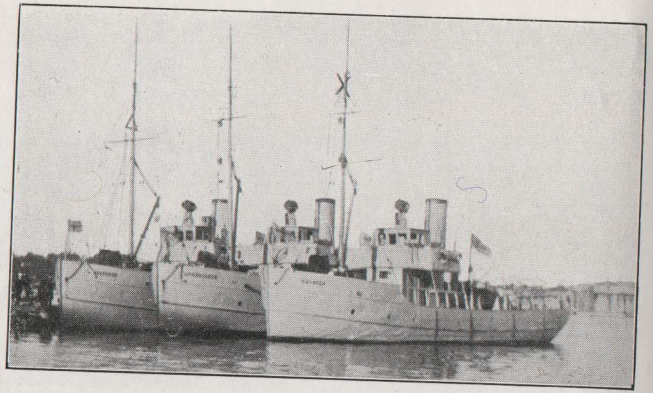
7 boats. **Nos. 27, 28, 30, 33—36,** by Karlskrona D.Y. and Bergsund Co., 1898-1903. 90 tons. H.P.: 1,300 = 23 kts. Fuel: 13—20 tons. Guns: 2—1 pdr. Complement, 15—18. All are ex-Torpedo boats with tubes removed. Mostly laid up in dockyards.



1930 *Photo, "Vår Flotta."*

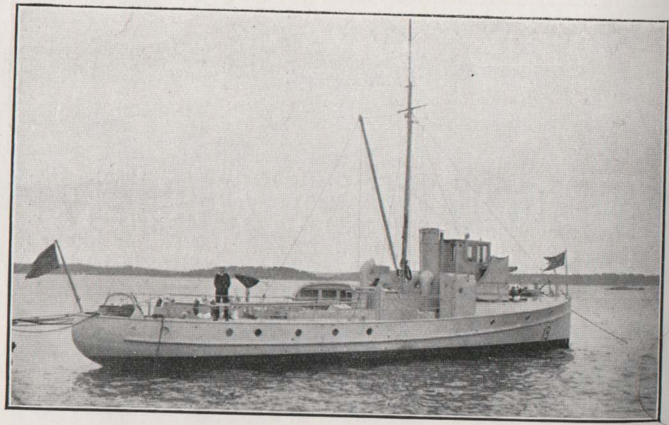
16 ex-Torpedo boats, **Nos. 39-54.** Displacement: 115 to 125 tons. H.P.: 2,000 = 25 kts. Guns: 2—6 pdr. All built by Karlskrona D.Y., Bergsund Co. and Götaverken Co., to designs of Ch. & At. Augustin Normand, Le Havre, and launched 1908-11.

## 4 Tenders.



1924 *Photo.*

**SÖKAREN, SVEPAREN, SPRÄNGAREN** (1918, Motala Co.). 160 tons. Dimensions: 85·3 × 23 × 9·8 feet. H.P. 400 = 11 kts. Guns: 1—6 pdr. Complement: 18. Identification Nos. are 16, 17, 18, respectively, which have been painted on bows.

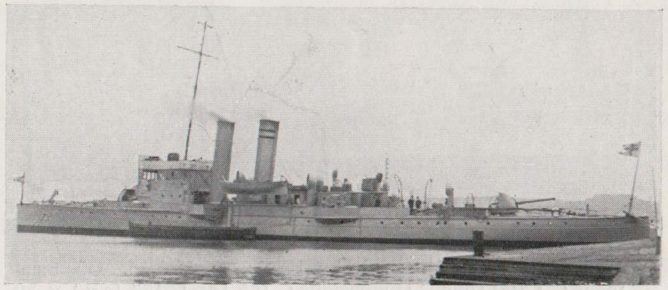


1926 *Photo, by courtesy of the Ministry of Defence.*

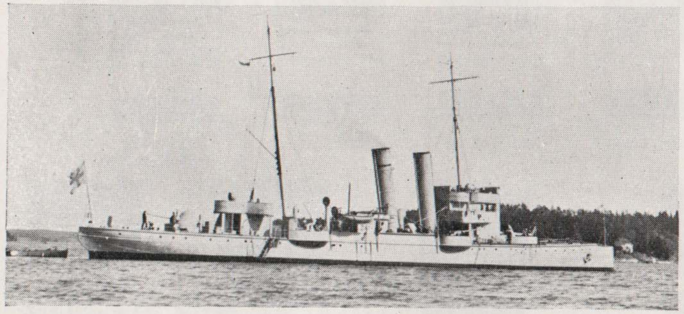
**No. 19** (1914). 55 tons. Guns: 1—1 pdr., 1 M.G. Speed: 10 kts. (oil motor). Used as an Aircraft Tender.

*Note.*—Tenders numbered **71—76** are not naval craft, but form part of military coast defence organisation.

## Depot Ships (*Depåfartyg*).



Jacob Bagge as reconstructed. 1936, *Hr. Registrator Ossi Janson.*

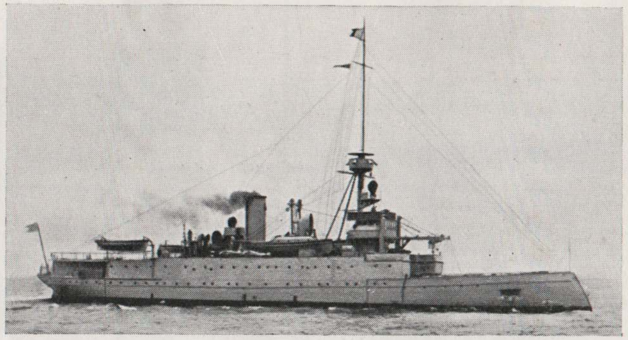


Örnen 1936, *Hr. Registrator Ossi Janson.*

**JACOB BAGGE** (1898), **ÖRNEN** (1896), Displacement : 750 tons. Dimensions : 220 × 27 × 9 feet. Machinery : Triple expansion. Designed H.P. 4,000 = 20 kts. Coal : 100 tons. Guns : 2—4·7 inch, 2—6 pdr., 2 M.G. (*J. Bagge* has no 6 pdr.)

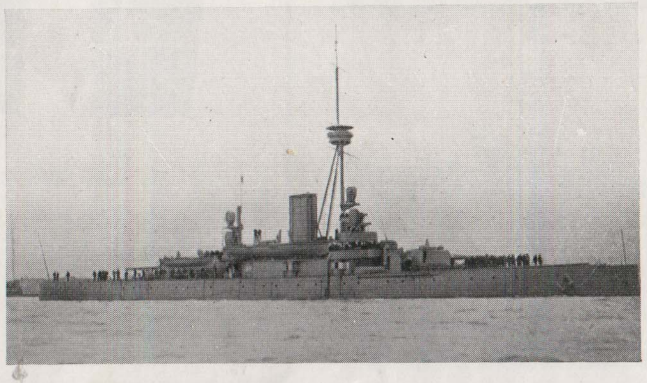
*General Notes.*—To distinguish between these ships compare relative positions of foremast, bridges, and fore funnel. *Örnen* has cut-away stern and mainmast. Both employed as Depot and Training Ships.

## Depot Ships—*continued.*



Svea. 1933 *Photo, Official.*

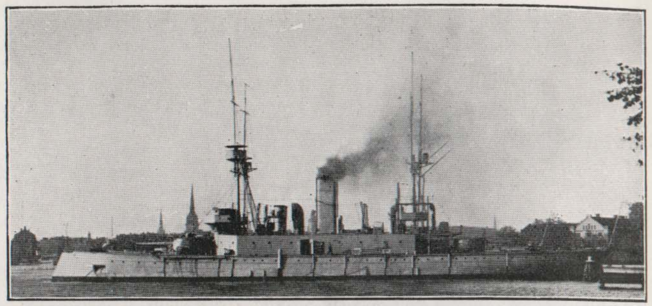
**SVEA.** Old Coast Defence Battleship, built by Lindholmen Co., 1886, rebuilt 1904 and 1924. 2,840 tons. Dimensions: 248·4 × 48·5 × 16·4 feet. Guns : 2—6 pdr. (*AA*), 2 M.G. Armour : 11¾″–8″ Belt, 2″ Decks. 2 screws. 6 cyl. boilers. I.H.P. 4,650 = 15 kts. Coal : 220 tons. Fitted as a depot ship for Submarines.



Niord 1932, *Hr. Registrator Ossi Janson.*

**NIORD** (Lindholmen Co. 1898). Ex-Battleship. 3,350 tons. Dimensions 278¼ × 48½ × 18 feet. Guns : 2—10 inch. Used as a receiving ship at Stockholm.

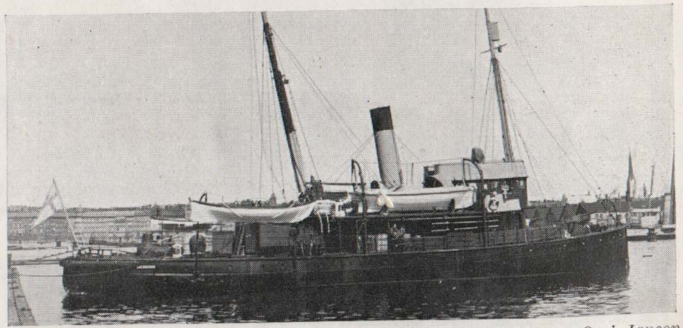
## Depot Ships—*continued.*



Göta. 1927, *Hr. Registrator Ossi Janson.*

**GÖTA** (Lindholmen Co., 1889). Old Battleship, somewhat similar to *Svea*, but 3150 tons. Dimensions : 258½ × 48 × 17¼ feet. Guns : 1—8·3 inch, 1—6 inch. Used as a receiving ship.

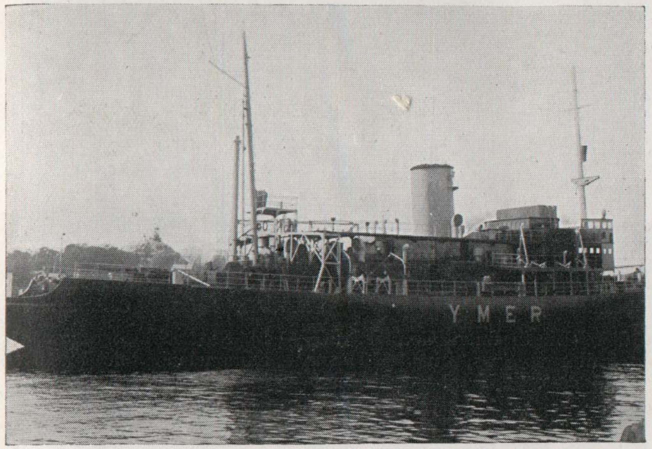
## Surveying Vessel.



Svensksund. 1936, *Hr. Registrator Ossi Janson.*

**SVENSKSUND** (1891). 360 tons. Guns : 2—6 pdr. H.P. 400 = 12½ kts. Coal : 50 tons.

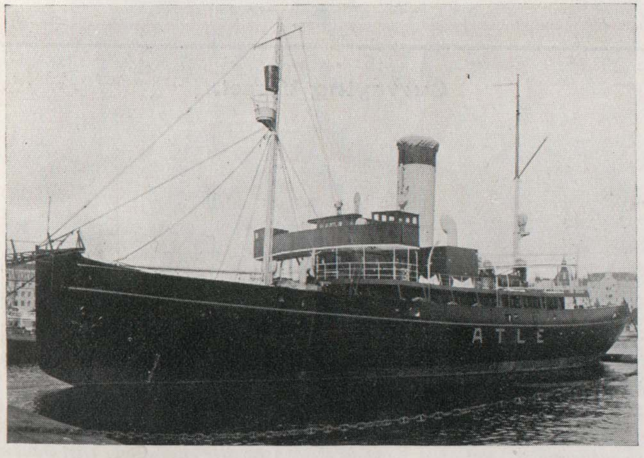
## Ice Breakers.



1933 *Hr. Registrator Ossi Janson.*

**YMER** (1933). Built by Kockums, Malmö. Displacement: 3,465 tons (4,350 tons *full load*). Dimensions: 246 (*pp.*), 257 (*o.a.*) × 63⅓ × 21 feet. Machinery: 6 Atlas Diesels driving electric generators. H.P.: 9,000 = 18 kts. Complement: 44.

*Note.*—*Ymer* was first large icebreaker to be given Diesel electric propulsion.

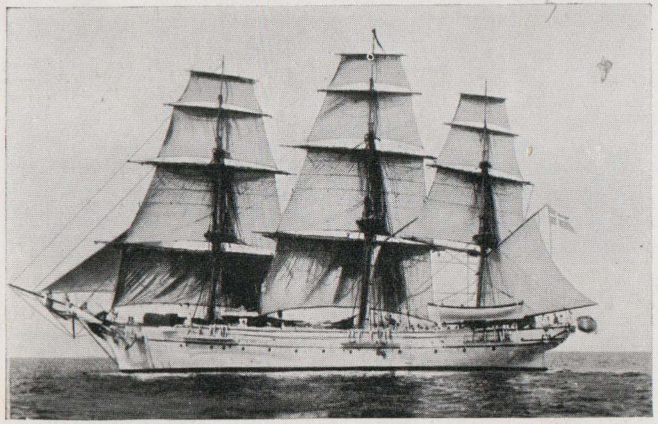


1933, *Hr. Registrator Ossi Janson.*

**ATLE** (1926). Displacement: 1,750 tons. Dimensions: 194½ (*pp.*), 207 (*o.a.*) × 55¾ × 20½ feet. H.P.: 4,000 = 16 kts. Complement: 44.

## Training Ships (*Övningsfartyg*).

2st u [illegible]

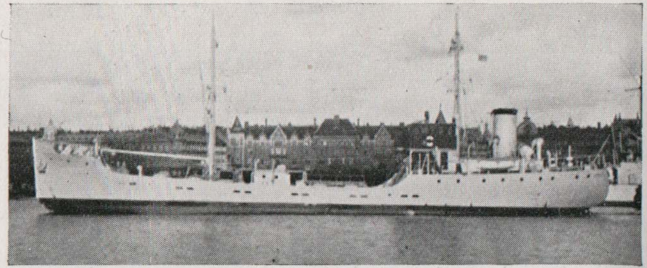


1930 *Photo, "Vår Flotta."*

**NAJADEN** (1897).
**JARRAMAS** (1900). } 350 tons.

*Note.*—Training ships *Af Chapman* and *Falken* both discarded in 1936.

## Oiler.

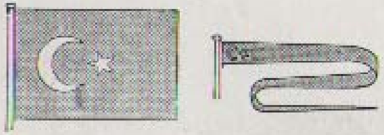


1933 *Hr. Registrator Ossi Janson.*

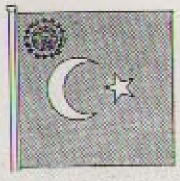
**BRÄNNAREN** (1933). Built by Kockums, Malmö. Displacement: 1,100 tons. Dimensions: 165 (*pp.*), 173 (*o.a.*) × 29 × 12 feet. Machinery: Atlas Diesels. H.P.: 500 = 10 kts.

# TURKISH FLEET.

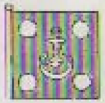
## Flags.



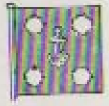
Ensign and Jack.



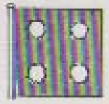
President's Standard.



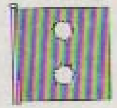
Commander-in-Chief.



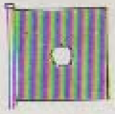
Minister of Defence.



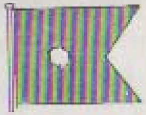
Admiral.



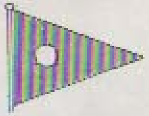
§Vice Admiral.



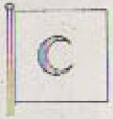
Rear Admiral.



Commodore.

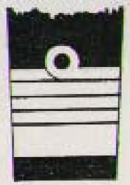


Senr. Officer.

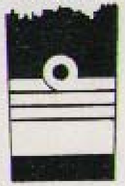


Red Crescent.

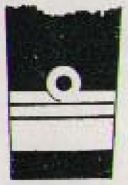
Vice Admiral 1st class has three balls.



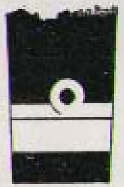
Admiral. of the Fleet



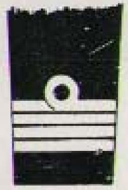
Admiral.



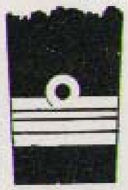
Vice Admiral.



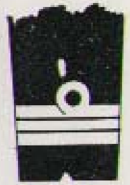
Rear Admiral



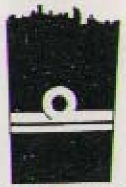
Captain (Senior).



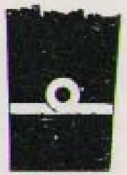
Captain (Junior).



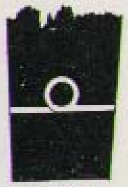
Commander.



Lieut-Commander and Lieut. (Senior)



Lieutenant. (Junior)



Sub-Lieut.

| | |
|---|---|
| Admiral of the Fleet | Büyük Amiral |
| Admiral | Or Amiral |
| Vice Admiral | Kor Amiral |
| Rear Admiral | Tüm Amiral |
| Commodore | Tuğ Amiral |
| Captain (Senior) | Albay |
| Captain (Junior) | Yarbay |
| Commander | Binbaşi |
| Lieutenant-Commander | Kidemli Yüzbaşi |
| Lieutenant (Senior) | Yüzbaşi |
| Lieutenant (Junior) | Teğmen |
| Sub-Lieutenant | Asteğmen |

*Minister of National Defence:* General K. Özalp.
*Under-Secretary for Navy:* Captain Hulusi Bay.
*Naval Attaché, London:* Lieut.-Commander Rifat Özdes.

### Mercantile Marine.

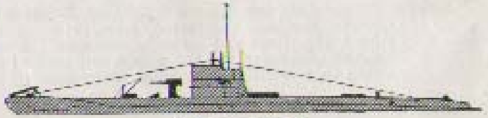
(From "Lloyd's Register," 1937 figures).
173 Vessels of 195,148 gross tonnage.

*New Programme:*

Two 8,000 ton Cruisers.

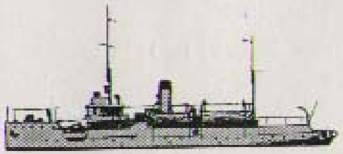
Four Destroyers.

Four Submarines.

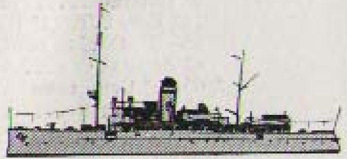


Nos. 1 and 2.

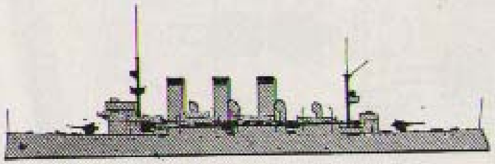
**Colour of Ships: Grey.**



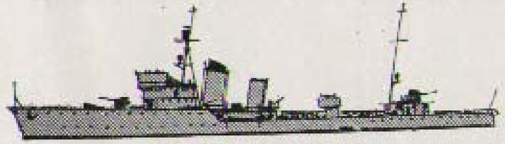
Kemal Reis *class*



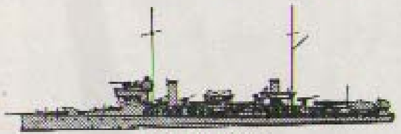
Aydin Reis.



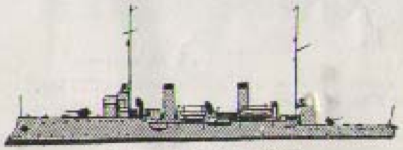
Mecidiye.



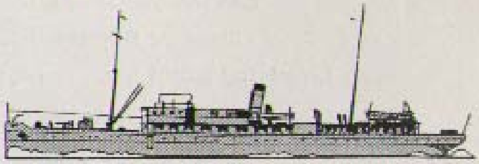
Tinaztepe. Zafer.



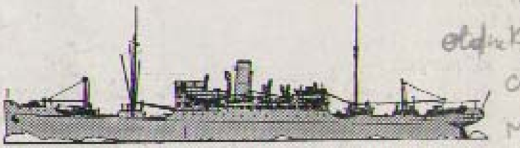
Samsun *class.*



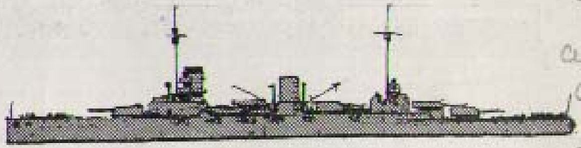
Peykisevket *class.*



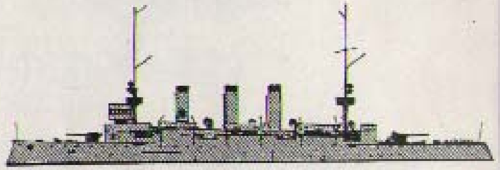
Marmara.



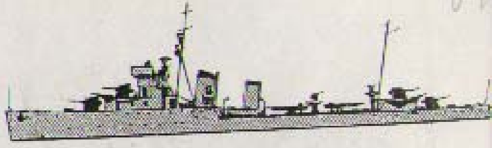
Erkin.



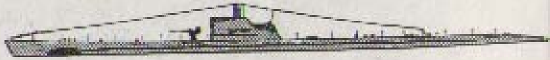
Yavuz.



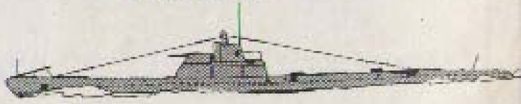
Hamidiye.



Adatepe. Kocatepe.



Dumlupinar. Sakarya.



Gür.

**YAVUZ** (ex-German *Goeben*,) (Blohm & Voss, March, 1911).

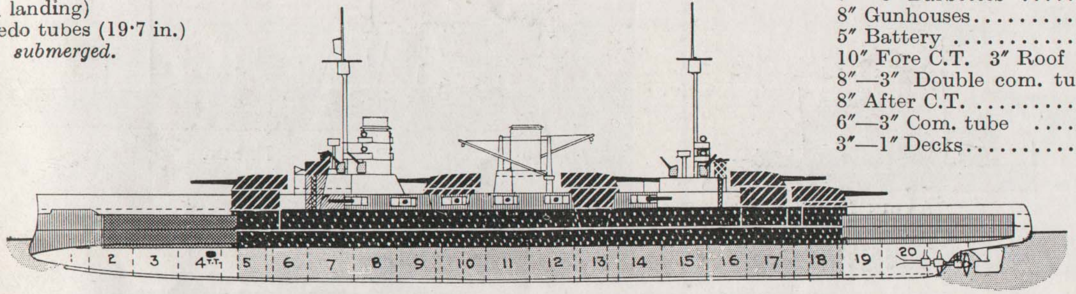
Standard Displacement, 23,100 tons. Complement, 1013.

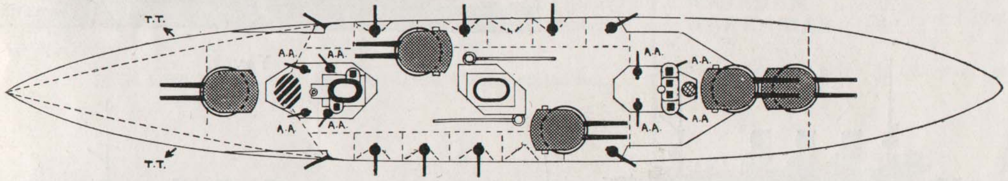
Length (*w.l.*), 610¼ feet. Beam, 96 ft. 10 in. Draught (*max. load*), 26 ft. 11 in.

Guns:
10—11 in. 50 cal.
10—5·9 in. 45 cal.
8—3·5 in. 45 cal.
4 M.G.
(1 landing)
Torpedo tubes (19·7 in.)
2 *submerged.*

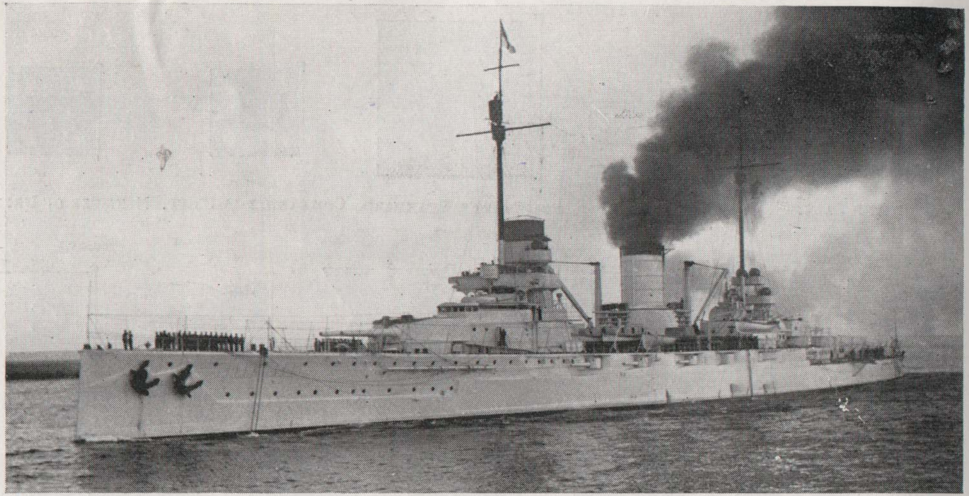
Anti-Torp. Pro. :—
2″—1″ deep H.T. Steel B.H., between extreme barbettes: Minute internal subdivision.

Armour (Krupp):
10½″ Belt (amidships) tapers to 6″ at top and 5″ below
3¾″ Belt (bow and stern)
9″—8″ Barbettes .......
8″ Gunhouses..........
5″ Battery .............
10″ Fore C.T. 3″ Roof ..
8″—3″ Double com. tube
8″ After C.T. ...........
6″—3″ Com. tube ......
3″—1″ Decks...........

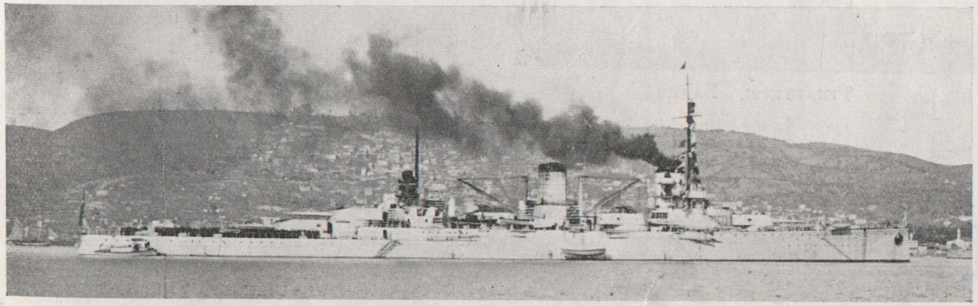




Machinery: Parsons turbine, 4 shaft, direct drive. Boilers: 24 Schulz-Thornycroft (German "Marine Type.") Designed H.P.: nominally 52,000 = 25·5 kts. Coal: *normal* about 1,000 tons; *maximum* 3,050 tons. Oil fuel: 200 tons.

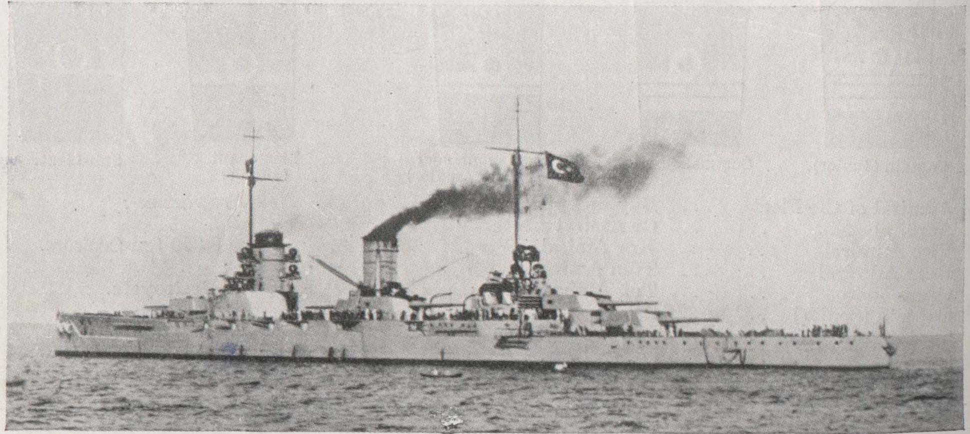


YAVUZ 1936, *Grand Studio, Malta.*



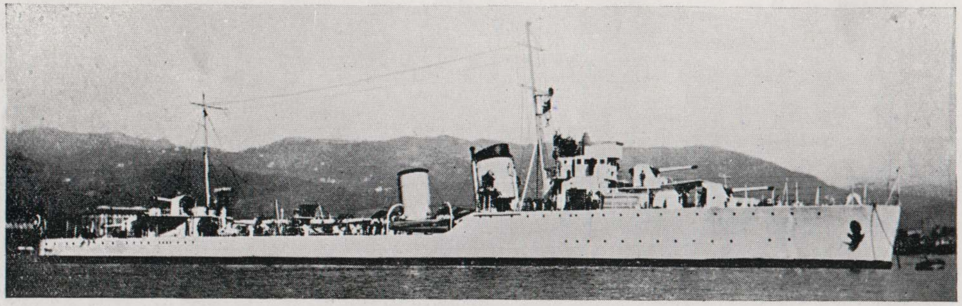
1934 *Photo, Official.*

*Engineering Notes.*—Endurance is (*a*) 5,350 miles at 10 kts., (*b*) 2,370 miles at a continuous *max.* sea-going speed of 23 kts. She made 26·8 knots on Trials for 6 hours, and 27·1 kts. for 4 hours, on Mar. 17, 1930.



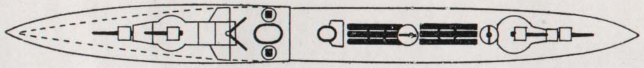
*General Notes.*—Laid down, August, 1909, by Blohm & Voss, Hamburg, under 1909 German Navy Programme, as a sister to German *Moltke*. Completed, July, 1912. Transferred to the Turkish Navy in 1914, and during the war was mined five times and severely damaged. A contract was signed in December, 1926, with the Chantiers de St. Nazaire (Penhoët), for the repair and refit of this battle-cruiser at Ismid; the work was considerably delayed owing to a floating dock proving unequal to her weight, and completion was not reached till 1930.

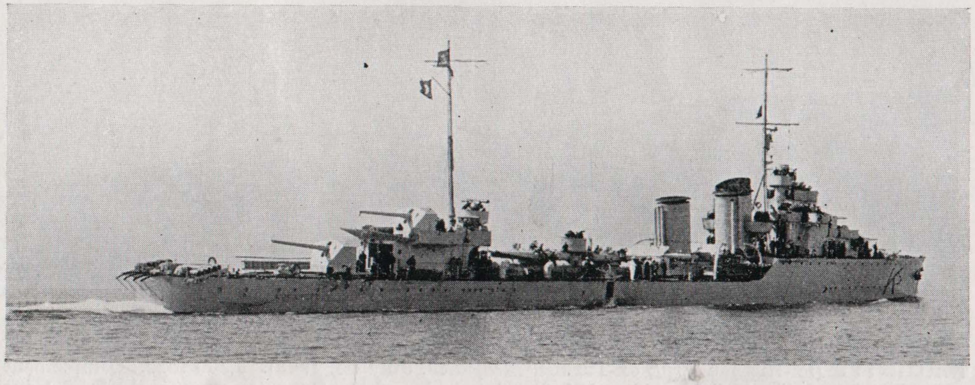
## Destroyers. (*Torpedo Muhribi*)



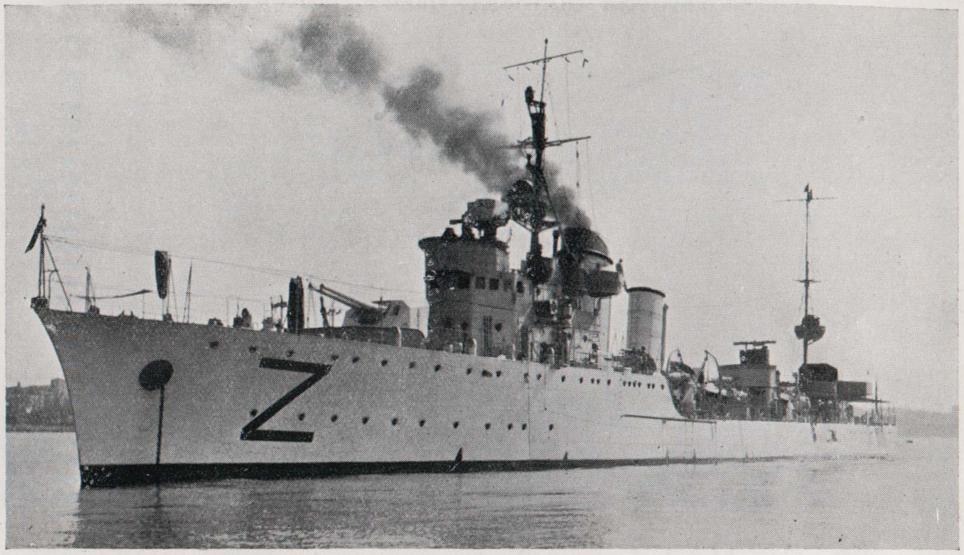
ADATEPE. 1932 *Photo, Official.*

2 *Ansaldo* boats: **Kocatepe** (Feb. 7, 1931) and **Adatepe** (March 19, 1931). Built at Sestri Ponente,
Displacement: 1,250 tons (*standard*),
1,350 tons (*normal*),
1,650 tons (*full load*).
Dimensions: $321\frac{1}{2}$ (*pp.*) $328\frac{2}{3}$ (*o.a.*) × $30\frac{3}{4}$ × $9\frac{1}{2}$ feet (*mean*).
Parsons geared turbines. S.H.P. 40,000 = 38 kts. (trials).
3 Thornycroft boilers with superheaters.
Guns: **4**—4·7 inch, 50 cal., **2**—40 m/m AA. and **2**—20 mm. AA.
Tubes: **6**—21 inch in triple mountings.
Oil, 360 tons. Complement, 149.
These boats are of Ansaldo design and are named after mountains near Smyrna associated with Turkish military glories.



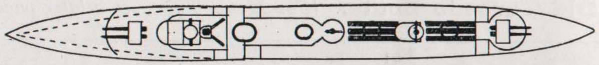


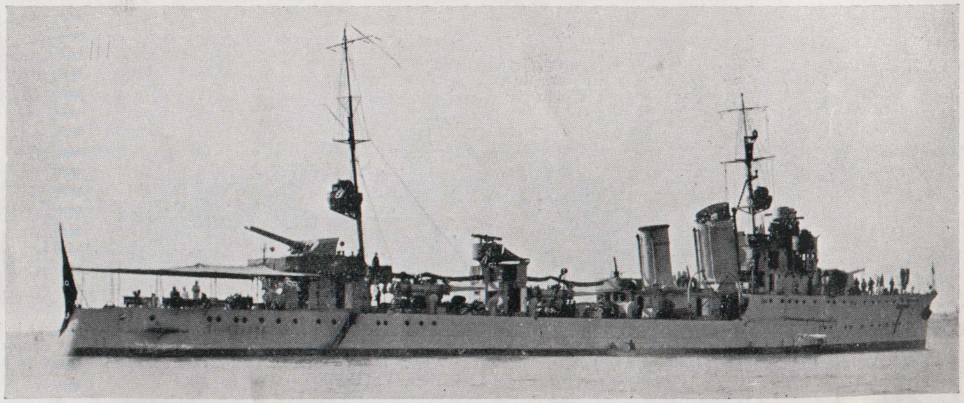
KOCATEPE. 1935.



ZAFER. 1933 *Photo, Official.*

2 *C.N. del Tirreno* boats: **Tinaztepe** (July 27, 1931). **Zafer** (Sept. 20, 1931). Built at Riva Trigoso.
Displacement: 1,350 tons (*normal*).
1,610 tons (*full load*).
Dimensions: 307(*p.p.*) × $30\frac{1}{2}$ × $10\frac{3}{4}$ feet.
Parsons geared turbines. S.H.P. 35,000 = 36 kts.
3 Thornycroft boilers with superheaters.
Guns: **4**—4·7 inch, 50 cal., **2**—40 m/m AA., **2**—20 mm. AA.
Tubes: **6**—21 inch in triple mountings.
Oil: 350 tons. Complement, 149.
These boats are of Italian design and generally resemble the Italian "Turbine" class.





TINAZTEPE. 1933 *Photo, Official.*

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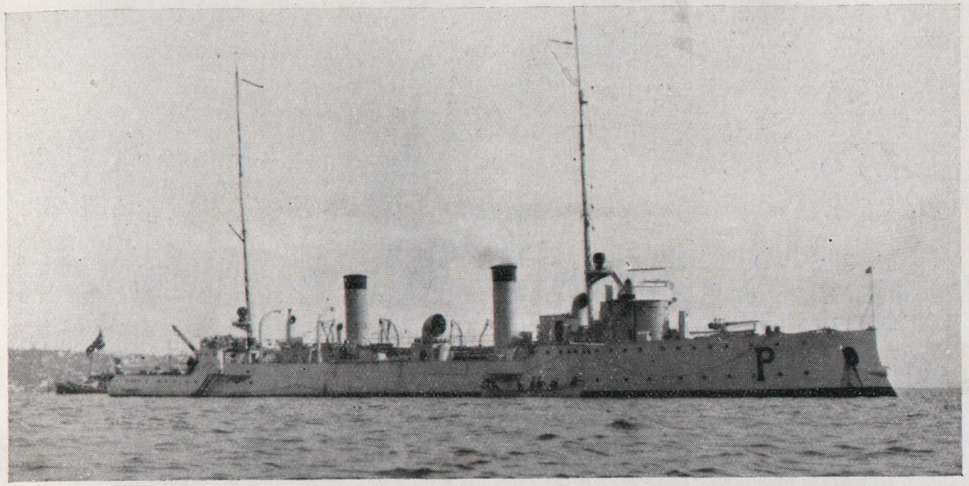
136

## Torpedo Gunboats (*Torpedo Muhribi*).

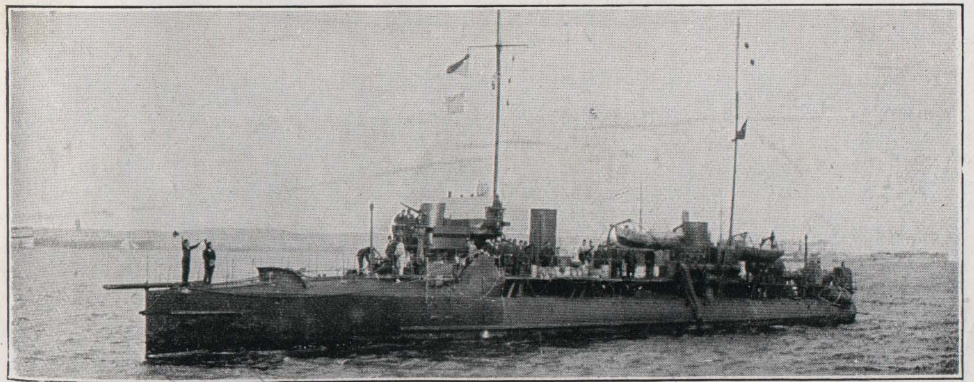


PEYKISEVKET. 1937, "*Yavuz.*"

**BERKISATVET** (1906). **PEYKIŞEVKET** (Nov., 1906). Built at Krupps' Germania Yard, Kiel. 775 tons. Dimensions : 262½ × 27⅔ × 9½ feet. Guns : **2**—3·9 inch, **4**—6 pdr. Torpedo tubes : **3**—18 inch. Designed H.P. 5100 = 22 kts. Coal : 240 tons. 25 mines carried. Complement, 105.

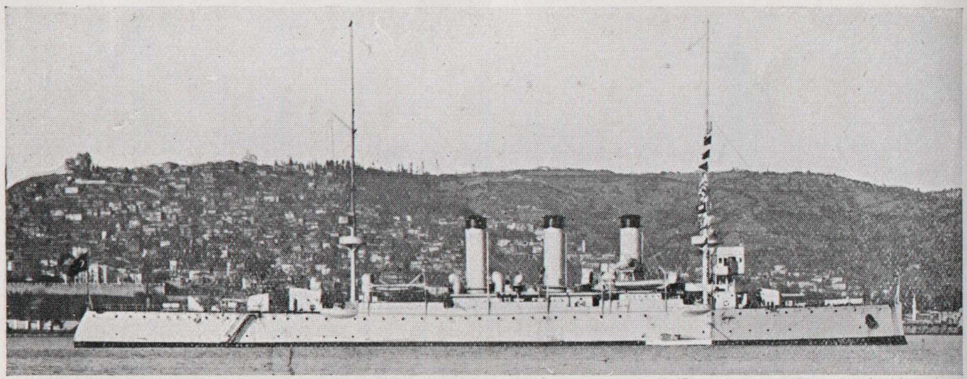
*Note.—Berkisatvet* was torpedoed by British Submarine *E* 11, August, 1915, but was beached and salved.

## Old Torpedo Boats. (*For Motor Type, see a later page.*)



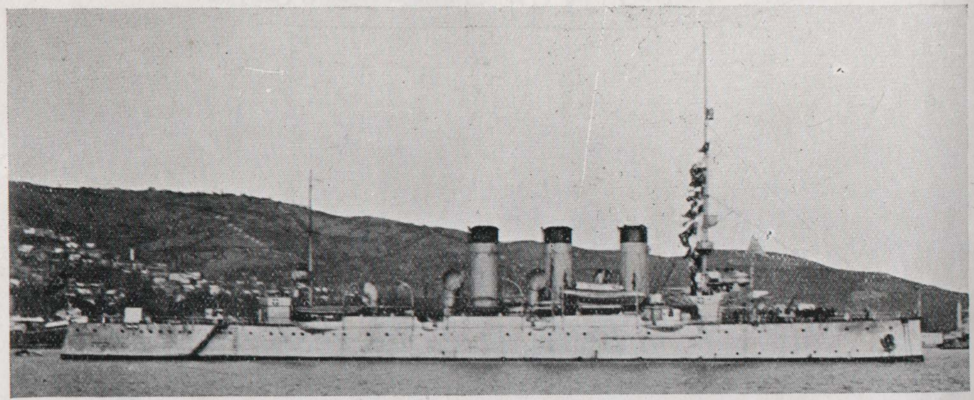
*French type* boats: ***Samsun, Basra,*** (both launched at Bordeaux 1907), and ***Tasoz*** launched by Schneider, Chalon (1907). 290 tons. Dimensions: 185 × 21 × 9½ feet. Armament : **1**—9 pdr., **6**—1 pdr , **2**—18 inch tubes . (*Samsun* has **1**—3 inch gun in place of 9-pdr.). I.H.P. : 6,000 = 29 kts. Coal : 70 tons. Endurance : 975 miles at 15 kts. Present speed about 20 kts. Complement : 67. *Tasoz* re-fitted, 1923–24.

## Old Cruisers (*Muhafazali Kruvazör*).



1932 *Photo, Official*

**HAMIDIYE** (ex-*Abdul Hamid*, Armstrong, Sept., 1903). 3830 tons. Complement, 302. Dimensions : 368 × 47½ × 16 feet (*mean* draught). Guns : **2**—5·9 inch, 45 cal. Krupp, **8**—3 inch (75 m/m) 50 cal. Schneider. Torpedo tubes (18 inch) : **2** *above water*. Fitted as a minelayer. 70 mines. Armour : 4″ Deck. Machinery : 2 sets 4-cylinder triple expansion. 2 screws. Boilers : Cylindrical. Designed H.P. : 12,000 = 22 kts. (*forced* draught). Present best speed about 16–18 kts. Coal : *normal*, 275 tons ; *maximum*, 750 tons. Endurance : 5,550 miles at 10 kts. At present serves as Training Ship for Naval Cadets.



1932 *Photo, Official.*

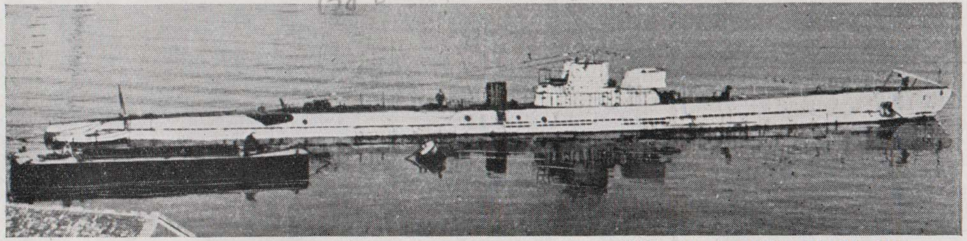
**MECIDIYE** (ex-Russian *Prut*, ex-Turkish *Medjidieh*, July 25, 1903). 3,300 tons. Complement : 365. Dimensions : 330 × 42 × 17½ feet (*max.* draught). Guns (as re-armed) : **6**—5·1 inch (Vickers), **4**—3 inch, 50 cal. (Schneider), **2** M.G. Deck, 1″. H.P. : 12,000 = about 18 kts. now. Babcock and Wilcox boilers. Coal : 600 tons. Endurance : 4,700 miles at 10 kts. Built by Cramps, Philadelphia. (Refitted and reboilered 1930.)

*Notes.*—Mined and sunk in Black Sea, April, 1915. Salved, repaired and re-fitted at Nikolaieff for Russian Navy, 1915–16. Seized by Austro-German Armies at Sevastopol, 1918, and returned to Turkish Navy.

# New Construction.

4 boats: 2 building by Blohm & Voss, Hamburg, and 2 at Gölcuk Dockyard, Ismit, under German supervision. First of latter pair was laid down Aug. 14, 1937. Displacement: 860 tons. In their main features these submarines will be similar to *Gür*, below.

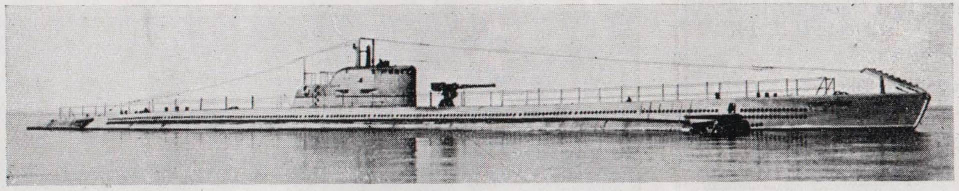
Batiray 138 $\frac{1044}{1357}$ 1-100 1-203 G 533 верф. Киль.



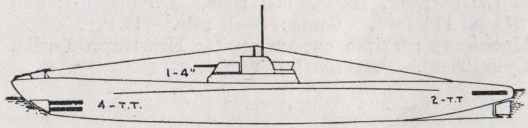
1935, *courtesy of Capitán M. Mille.*

1 *German* design: **Gür** (Echavarrieta y Larrinaga, Cadiz, 1932). Purchased 1934 and delivered in Jan. 1935. Displacement: 750/960 tons. Dimensions: 237½ × 20⅓ × 13½ feet. Armament: 1—4 inch, 1—20 mm. AA. guns, 6—21 inch tubes (4 bow, 2 stern). 14 torpedoes carried. 2 sets M.A.N. Diesels. H.P. ——, speed, 20/9 kts. Radius: 6,400 miles at 9½ kts. on *surface;* 1,880 miles at 18½ kts. on *surface;* 101 miles at 4 kts. *submerged.* Diving limit, 50 fathoms. Complement: 42.

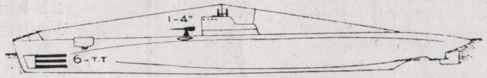
*Note.*—Many of the parts for this submarine were made in the Netherlands.



1 *Bernardis* type: **Sakarya** (Cant. Nav. Triestino, Monfalcone, Feb. 2, 1931). Displacement: 610/940 tons. Dimensions: 196 (*p.p.*) × 22½ × 13 feet. Guns: 1—4 inch, 1 20 mm. AA. Tubes: 6—21 inch. M.A.N Diesels. H.P.: 1,600. Electric motors H.P.: 1,100 = 16/9·5 kts. Radius: 4,000 miles at 10 kts. Complement: 41.



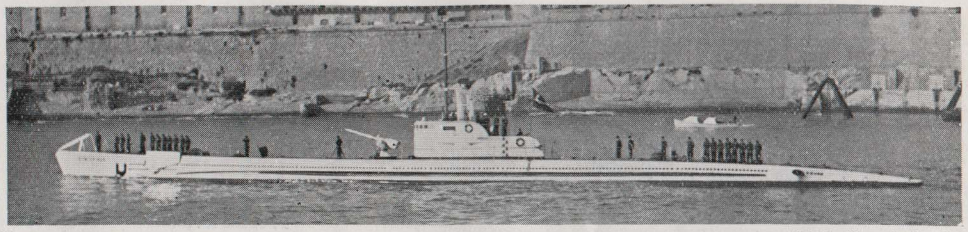
GÜR.



SAKARYA.

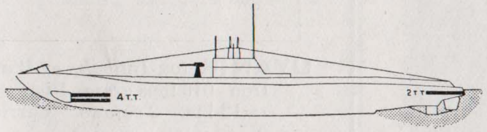
Saldiray } (38-39) $\frac{934}{1210}$ + $\frac{20}{9}$ кн 1-102 1-20 6-533 по герм. проекту
Yildiray }

Burak Reis } 40 $\frac{683}{886}$ + $\frac{13,7}{9,0}$ кн 1-76 [illegible] 5-533 верф. Англия
Murat Reis }
Oruç Reis }

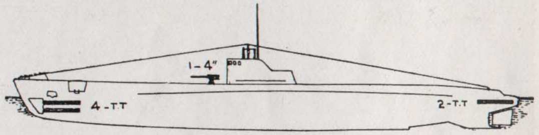


DUMLUPINAR. 1936, *Grand Studio.*

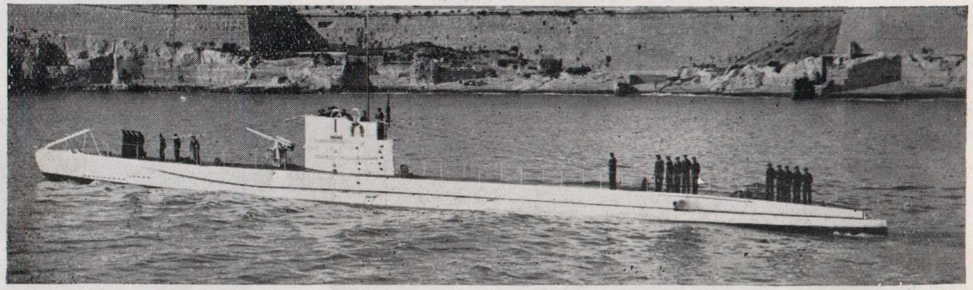
1 *Bernardis* minelaying type: **Dumlupinar** (4 March, 1931). Built by Cantiere Navale Triestino, Monfalcone. Displacement: 920/1,150 tons. Dimensions: 223 × 19 × 14 feet. Armament: 1—4 inch gun, 1 M.G., 6—21 inch tubes (4 bow, 2 stern). 48 mines carried. Machinery: M.A.N. Diesels. H.P.: 3,000 = 17·5 kts. *on surface.* Electric motors of 1,000 H.P. = 9 kts. *submerged.* Complement: 47.



Nos. 1 and 2.



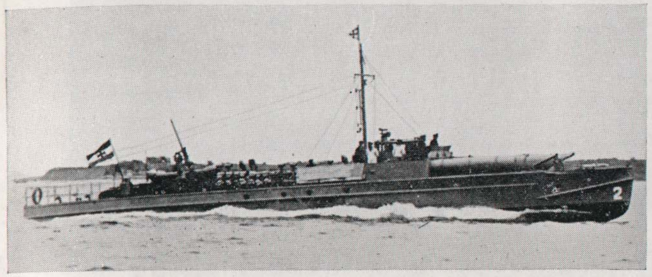
DUMLUPINAR.



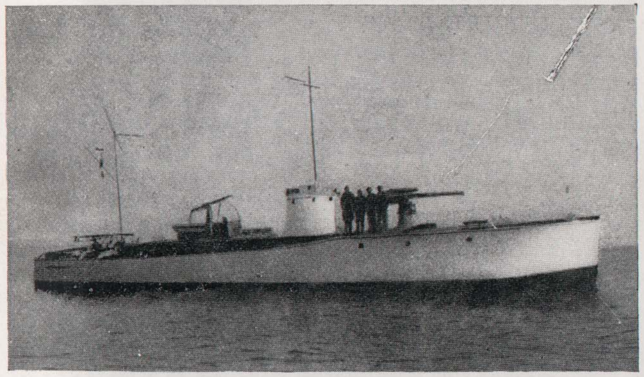
BIRINCI INONÜ (No. 1). 1936, *Grand Studio*

2 *Fijenoord* type: ***No. 1*** (February 1, 1927), ***No. 2*** (March 12, 1927). (In Turkish these numbers are rendered as BIRINCI INÖNÜ, IKINCI INÖNÜ), Built by Fijenoord Co., Rotterdam. Displacement: 505/620 tons. Dimensions: 192½ × 19 × 11⅓ feet. 2 sets M.A.N. Diesels. H.P. 1,100 = 13·5/8·5 kts. Guns: 1—3 inch, 1—37 mm. Tubes: 6—17·7 inch (4 bow, 2 stern). Complement, 29.

## Motor Torpedo Boats.



5 (or more) *Lürssen* type: Names not advised. Built at Vegesack. Displacement: About 60 tons. Length: 90 feet. 2 torpedoes, 1 small AA. gun. Machinery: High speed Diesels. H.P. 2,400 = 36 knots.



1931 *Photo.*

3 *S.V.A.N.* Type: **DOĞAN, MARTI, DENIZKUŞU.** Built at Venice, 1930–31. 32 tons. Dimensions: 69 × $13\frac{3}{4}$ × 4 feet. 2 torpedoes. **1**—3 inch gun, **2** M.G., **8** D.C. H.P.: 1,500 = 34 kts.

*Photo wanted*

8 *S.V.A.N.* type: Nos. 1—8 (1926). 25 tons. 2 torpedoes, **2** M.G., **4** D.C. Speed: 30 kts.

## Minelayers.

(4 Minelayers of 1,000 tons are *projected.*)

*Photo wanted*

**YARDIM** (ex-*Nusret*, Germania, Kiel, 1912). 365 tons. Dimensions: 132 × 22 × $8\frac{1}{4}$ feet. H.P. 1,200 = 15 kts. Guns: 2—57 mm. Can carry 25 mines. Now fitted with deep sea diving apparatus, with which 115 fathoms has been reached.

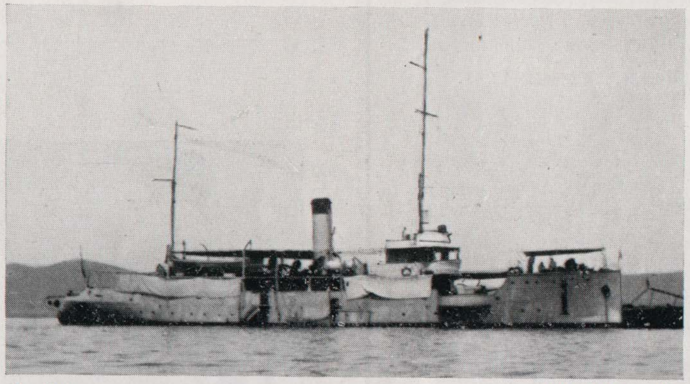
*Note.*—This vessel laid the minefield in the Dardanelles on which *H.M.S. Irresistible* and *Ocean*, and the French battleship *Bouvet*, were lost on March 18, 1915.

*Photo wanted*

**UYANIK** (ex-*Intibah*, ex-*Warren Hastings*, Port Glasgow, 1886). Iron 616 tons *gross*. Dimensions: 202 × 30 × 12 feet. H.P. 1670 = 12 kts. 2 screws. Carries 20-25 mines.

*Note.*—Completely refitted in 1933. Originally a Salvage Tug.

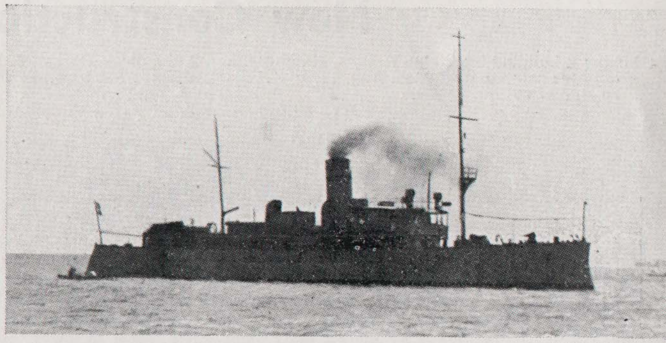
## Mine Sweepers.



ISA REIS 1937, "*Yavuz.*"

3 *La Seyne* type: **KEMAL REIS** (ex *Duruk Reis*, Feb., 1912), **HIZIR REIS** (Feb., 1912) and **ISA REIS** (Dec., 1911). 413 tons. Dimensions: $154\frac{1}{4}$ × $25\frac{3}{4}$ × $4\frac{1}{4}$ feet. Guns: **3**—3 inch (12 pdr.), **2**—3 pdr., **2** M.G. H.P. 850 = 14 kts. Refitted, 1923. The **2** forward **3** inch guns, shown above in sponsons, are now mounted on forecastle.

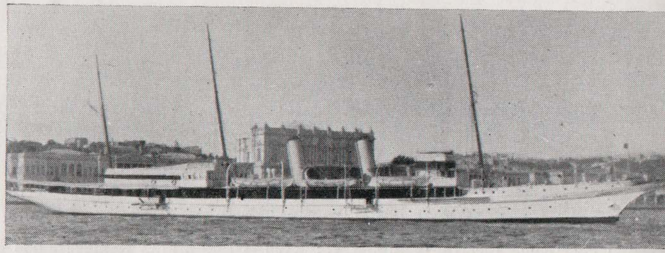
## Surveying Vessel.



1937, "*Yavuz.*"

**AYDIN REIS** (St. Nazaire, June, 1912). Refitted in 1925. 502 tons. Dimensions: $178\frac{1}{2}$ × $27\frac{5}{6}$ × 8 feet. Boilers: Babcock. H.P.: 1,025 = 14 kts. Guns: **2**—3 inch, **2**—6 pdr.

## Yachts.



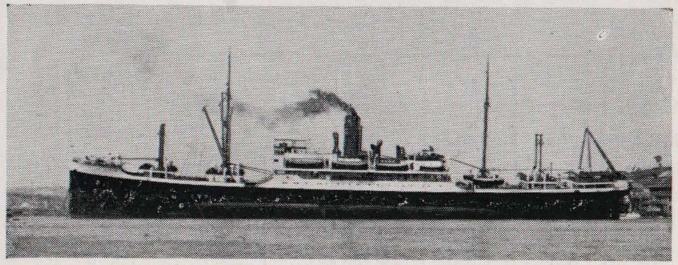
1937 "*Yavuz.*"

**ERTUĞRUL** (Armstrong, 1903). 964 tons. Dimensions: 260 (*p.p.*) × $27\frac{4}{5}$ × $11\frac{1}{2}$ feet. Guns: **8**—3 pdr. H.P. 2500 = 21 kts. Machinery: Triple expansion by Hawthorn Leslie. Boilers: Cylindrical. Presidential Yacht.

*Photo wanted*

**SÜĞÜTLÜ** (Armstrong, Sept. 25, 1903). 188 tons. Dimensions: $123\frac{1}{2}$ × 18 × $5\frac{3}{4}$ feet. Machinery: Triple expansion by Mumford. H.P.: 250 = 14 kts.

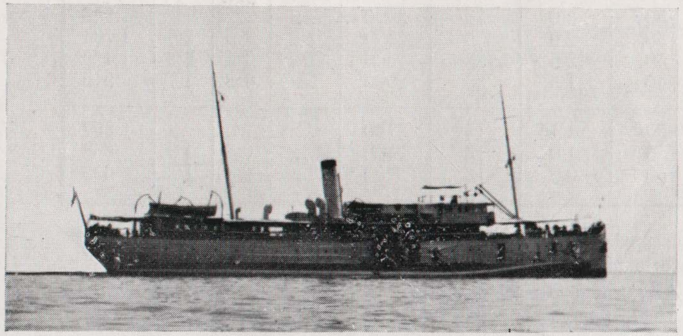
## Submarine Depot Ship.



1937, "*Yavuz.*"

**ERKIN** (ex-N.D.L. liner *Trier*), (Weser, Bremen, 1923). Purchased in July, 1936. 9,415 tons *gross*. Dimensions: 458½ × 57½ × 28 feet. Machinery: Triple expansion. I.H.P.: 4,200 = 12·5 kts.

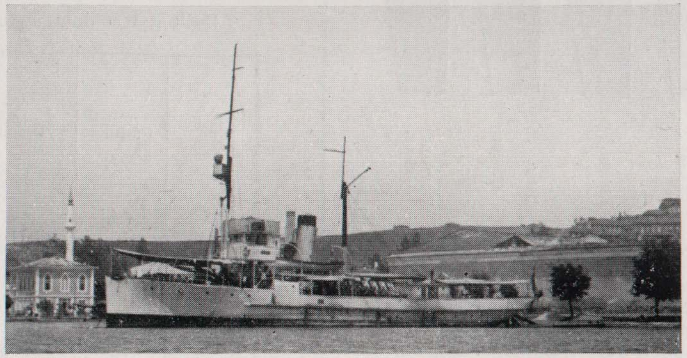
## Depot Ship for T.B.



1937, "*Yavuz.*"

**MARMARA** (ex-*Syria*, ex-*Russ*), (Stockholm, 1906). 1,078 tons *gross*. Dimensions: 217½ × 32 × — feet. Guns: **1**—3 inch. Machinery: Triple expansion. 2 shafts.

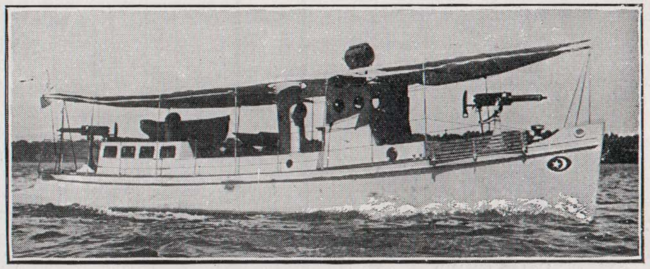
## Seagoing Tug.



1937, "*Yavuz.*"

**RASIT** (1918). "Saint" type, purchased 1926. Displacement: 820 tons. Dimensions: 135½ × 29 × 14½ feet (*max.* draught). Machinery: Triple exapnsion. 1 shaft. H.P.: 1,250 = 12 kts. Coal: 240 tons.

## Motor Launches.



*Photo, Messrs. J. I. Thornycroft & Co.*

4 *Thornycroft* type: *Nos.* 11, 14, 15, 18. These are motor patrol boats, built 1911, for customs, police and coastguard duties. Dimensions: 62 × 11 × 2½ feet. Guns: **1** M.G. or **1** small Q.F. 140 H.P. Thornycroft petrol motor = 11 kts. Bullet-proof steel over conning position and engines.

## Oiler.

*Photo wanted*

**GÖLCÜK** (Gölcük Dockyard, Ismit, Nov. 4, 1935). 1,255 tons *gross*. Deadweight capacity: 750 tons. Dimensions: 185 × 31⅓ × 10 feet. Machinery: Diesel. H.P.: 700 = 12·5 kts.

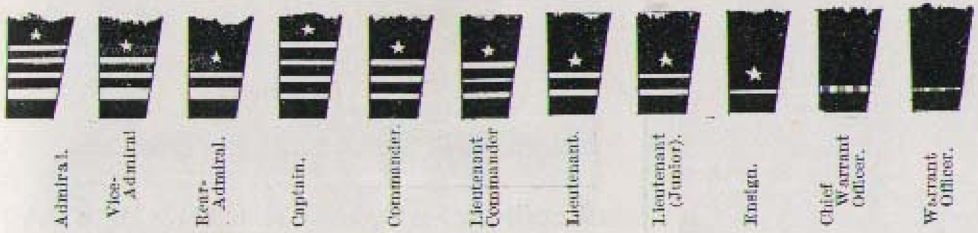
## Collier.

*Photo wanted*

**ULKU** (ex-*Silvergray*, ex-*Julius Kessler*), (Duluth, Minn., 1920). Purchased in 1931. 2,412 tons *gross*. Dimensions: 251 × 43½ × 21 feet (*mean*). Machinery: Triple expansion. H.P.: 1,250 = 10 kts.

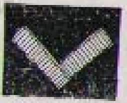
# UNITED STATES NAVY.

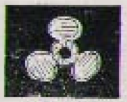
## UNIFORMS.

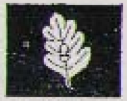


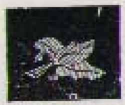
The rank of Admiral has been provided for the Chief of Naval operations, Navy Dept., also the ranks of Admiral and Vice-Admiral for certain flag officers afloat.

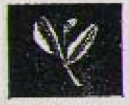
*Note.*—Lieutenants, junior grade, have 1½ stripes. Chief Warrant Officers one stripe broken with blue. Line Warrant Officers have one half stripe broken with blue. Staff Warrant Officers under Chiefs have no sleeve mark. Engineers same as Line Officers (interchangeable). Other branches than executive wear no sleeve star, but have following badges of branch over top stripe.

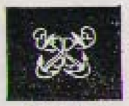

Carpenter.

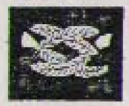

Machinist.

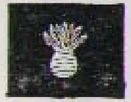

Medical.

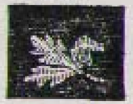

Supply.

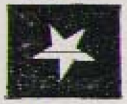

Construction.

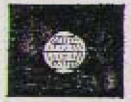

Boatswain.

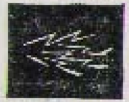

Civil Engineer.


Gunner.


Pay Clerk.

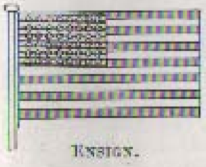

Line.

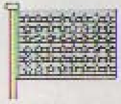

Electrician.

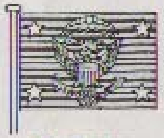

Radio-Electrician.

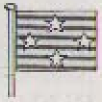
## FLAGS.

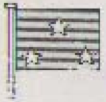
*Red* ▥
*Blue* ▤
*White* □
*Yellow* ▦

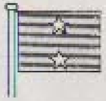

ENSIGN.

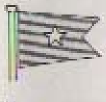

UNION-JACK.

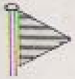

PRESIDENT.

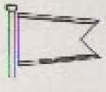

ADMIRAL.

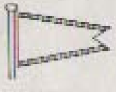

VICE-ADMIRAL.

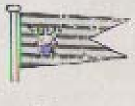

REAR-ADMIRAL.

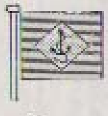

COMMODORE.

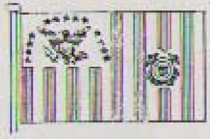

S.N.O.


SQUADRON COMMANDER.


DIVISION COMMANDER.


NAVAL RESERVE.


NAVAL MILITIA.


COAST GUARD.

*Commander in Chief :* Franklin D. Roosevelt.
*Secretary of the Navy :* Claude A. Swanson.
*Assistant Secretary of the Navy :* Charles Edison.
*Chief of Naval Operations :* Admiral W. O. Leahy.
*Asst. Chief of Naval Operations :* Rear-Admiral J. O. Richardson.
*General Board :* Rear-Admirals T. C. Hart, A. E. Watson, A. W. Johnson, W. H. Allen.
*Personnel U.S.N. and Marine Corps :* Officers, 10,898. Men, 109,094. (Reserves) : Officers, 10,828, Men, 34,333.
*Naval Attaché, London :* Captain Russell Willson.

## Principal Guns in the U.S. Fleet.

(Officially revised, 1929.)

Built at Washington Gun Factory, proved at Indian Head, Dahlgren, Va., and Potomac Range.

| Notation | Nominal Calibre. | Mark or Model. | Length in Calibres. | Weight of Gun. | Weight of A.P. Shot. | *Service* Initial Velocity. | *Maximum* penetration firing capped A.P. direct impact against K.C. armour. 9000 | 6000 | 3000 | Muzzle Energy. |
|---|---|---|---|---|---|---|---|---|---|---|
| | inch. | | | tons. | lbs. | ft. secs. | in. | in. | in. | ft-tons. |
| HEAVY | 16 | II | 50 | 128 | 2100 | 2800 | ... | ... | ... | ... |
| | 16 | I | 45 | 105 | 2100 | 2600 | ... | ... | ... | 98,531 |
| | 14 | IV | 50 | 81 | 1400 | 2800 | ... | ... | ... | 76,087 |
| | 14 | I | 45 | 63½ | 1400 | 2600 | 18 | ... | ... | ... |
| | 12 | VII | 50 | 56·1 | 870 | 2900 | 11·0 | 13·9 | 17·5 | 50,783 |
| | 12 | VI | 45 | 53·6 | 870 | 2700 | 10·6 | 13·3 | 16·6 | 44,020 |
| | 12 | V | 45 | 52·9 | 870 | 2700 | 9·8 | 12·3 | 15·5 | 44,020 |
| | 8 | IX | 55 | 29·7 | 250 | 3000 | ... | ... | ... | 16,240 |
| | 8 | VI | 45 | 18·7 | 260 | 2750 | 4·4 | 6·1 | 8·6 | 13,630 |
| | 8 | V | 40 | 18·1 | 260 | 2500 | 4·0 | 5·3 | 7·5 | 11,264 |
| MEDIUM | 6 | XII | 53 | 10 | 105 | 3000 | ... | ... | ... | 6,551 |
| | 6 | VIII | 50 | 8·6 | 105 | 2800 | 2·3 | 3·2 | 5·2 | 5,707 |
| | 6 | VI | 50 | 8·3 | 105 | 2600 | 2·2 | 2·9 | 4·7 | 4,920 |
| | 6* | IX | 45 | 7·0 | 105 | 2250 | 2·1 | 2·5 | 3·8 | 3,685 |
| | 6* | IV. VII | 40 | 6·0 | 105 | 2150 | 2·1 | 2·4 | 3·6 | 3,365 |
| | 5* | VII | 51 | 5·0 | 50 | 3150 | 1·4 | 1·8 | 3·4 | 3,439 |
| | 5 | VI | 50 | 4·6 | 50 | 3000 | 1·4 | 1·7 | 3·2 | 3,122 |
| | 5 | V & VI | 50 | 4·6 | 60 | 2700 | 1·6 | 2·0 | 3·5 | 3,032 |
| | 5* | II, III, IV | 40 | 3·1 | 50 | 2300 | 1·4 | 1·7 | 2·6 | 1,834 |
| LIGHT and AA | 4* | IX | 50 | 3·0 | 33 | 2900 | ... | ... | .. | 1,926 |
| | 4* | VIII | 50 | 2·9 | 33 | 2800 | 1·2 | 1·5 | 2·6 | 1,794 |
| | 4* | VII | 50 | 2·6 | 33 | 2500 | 1·2 | 1·4 | 2·2 | 1,430 |
| | 4* | III,IV,V,VI | 40 | 1·5 | 33 | 2000 | ... | 1·2 | 1·7 | 915 |
| | 3§ | X | 50 | 1·15 | 13 | 2700 | ... | ... | ... | 657 |
| | 3 | V, VI, 8-A | 50 | 1·0 | 13 | 2700 | ... | 0·8 | 1·2 | 658 |
| | 3* | II, III | 50 | 0·9 | 13 | 2700 | ... | 0·8 | 1·2 | 658 |

* = Brass cartridge case. § Anti-aircraft gun.

(There is also a 5 inch, 38 cal., 1932.)

All guns use nitro-cellulose.

*Naval Appropriation :* 1936–1937, $528,263,632. 1937–1938, $587,302,600.

## Mercantile Marine.

("Lloyd's Register," 1937, figures.)

Total *gross* tonnage, including Great Lakes and Philippines, 3,485 vessels of 12,429,613 tons.

# NOTES ON ORDNANCE, TORPEDOES. &c.

*Note.*—Starred Paragraphs (⁂) are official data, furnished to "Fighting Ships" by courtesy of the Navy Department.

## I.—Ordnance, &c.

*DIRECTORS.*—In all Battleships, Newer Light Cruisers and Destroyers. Type of Director: Navy type. Range Clocks on masts and Deflection Scales on gunhouses.

*FIRE CONTROL.*—Latest type is self-synchronising electric.

⁂*RANGE FINDERS.*—Made in various sizes from short 3-feet base range finders for navigation to 30-feet base range finders for use in turrets. Standard practice in U.S. Navy is now to mount one range finder in each turret.

⁂*HIGH EXPLOSIVES.*—T.N.T. and Explosive "D" are standard high explosives for U.S. Navy.

⁂*NON-RICOCHET SHELLS.*—Flat-nosed type; does not ricochet from surface when fired at elevation of over 2°. Made in 3 inch, 4 inch, 5 inch and 6 inch sizes for guns of equivalent bores. Delay action fuze commences on impact with water. Use of this shell converts gun into what is practically a long range depth charge thrower, the flat-nosed shell acting as depth charge.

⁂*STAR SHELLS.*—Range, three to six land miles. Made for 3 inch, 4 inch, 5 inch and 6 inch guns. Time fuze lights lamp and expels parachute and burner through base of shell. Normally, shell detonates at 1000 feet. Burner, 800,000 candle power, burning for 30 seconds, and illuminating sea for one mile diameter.

## II.—Torpedoes.

⁂Torpedoes in U.S. Navy are all turbine-driven. 21 inch is standard size used. (No current official details available of marks, ranges, speeds, charges and types of heater.)

## III.—Mines.

⁂Made in various sizes and of constructions particularly adapted for work they are expected to perform. Anchor similar to British type.

*Unofficial Notes.*—Mk. VI anti-submarine type of mine is reported to weigh 1400 lbs. and to have 300 lbs. T.N.T. charge. Body of mine, spherical, 3 feet diameter. Form of detonation uncertain; said to consist of antennae fitted with the Earle Patent Magnetic Pistol. Sinker is box-shaped and has wheels to gauge of laying ship's mine-discharging rails. Mine and sinker float together immediately after laying, while a 90 lb. plummet (attached to ½ inch steel wire) sinks. The "plummet cord" is measured off to same depth at which mine is to float below surface. When plummet cord is spun full out, latch is unlocked and mine and sinker separate. Mine still floats on surface, while mine-mooring cable begins to spin off drum and sinker descends. Immediately the plummet touches bottom, the running-out of mine-mooring cable is stopped and cable is locked. Sinker (or anchor) then comes down to bottom, drawing down the mine to the desired depth below the surface. Soluble safety plug used. Antennae said to consist of thin conducting wires and magnetic pistols, floating out in a star pattern all round body of mine and giving a contact diameter of 50 feet. Has been found effective against large surface ships. Being light and easily handled, it has been adopted for laying by Light Mine Layers.

## IV.—Aircraft Bombs.

⁂(*a*) 18 lb. Explosive charge, T.N.T.
(*b*) 25 lb. Explosive charge, T.N.T.
(*c*) 158 lb.* Explosive charge, T.N.T.
(*d*) 214 lb.* Explosive charge, T.N.T.
(*e*) 230 lb. (British design).* Explosive charge, Amatol.
(*f*) 266 lb.* Explosive charge, T.N.T.
(*g*) 500 lb. Explosive charge, T.N.T.
(*h*) 1000 lb. Explosive charge, T.N.T.

*Note.*—Types marked * for Anti-Submarine use.

## V.—Anti-Submarine.

⁂*DEPTH CHARGES.*—Mk. IV. Charge 600 lbs. of T.N.T. Dimensions: 24 inch diameter, 28 inches long. 100 feet effective radius, hydrostatic firing valve, similar to Mks. II and III Depth Charges.

⁂Depth Charge, Mks. II and III. Charge: 300 lbs. of T.N.T. Dimensions: 18 inch diameter, 28 inches long. Effective within a radius of 70 feet from point of detonation. Limit of detonation adjustable between 36 and 300 feet. Safety device prevents detonation due to gun blast, etc., detonation above six fathoms, or when thrown overboard with firing device in the off position. Detonation by hydrostatic pressure only. During War, destroyers carried from 30 to 50 depth charges and vessels on submarine patrols up to 100 depth charges.

⁂*Y-GUN OR DEPTH CHARGE PROJECTOR.*—Two barrels set at an angle of 90°, each barrel 3 feet long and 6 inch bore. 300 lb. depth charges fastened to arbors, inserted in barrels of Y and common powder charge exploded at junction of barrels; range of about 30 yards obtained.

*HYDROPHONES.*—K-tube fish type, 30 miles acoustic radius, but operating vessel must stop engines and auxiliaries while listening. SC- and MB tube types, 3 miles acoustic radius built into hull and insulated against noise; can be used without stopping ship.

(Also *v.* Non-Ricochet Shells; Aircraft Bombs, Sweeping Gear.)

## VI.—Sweeping Gear.

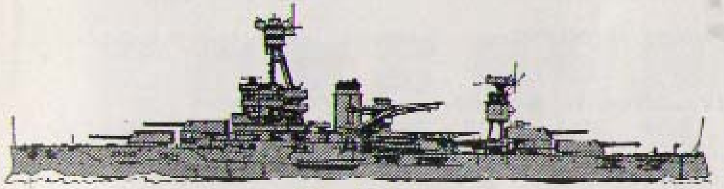
PV's as British Navy of H.S.S.S. and H.S.M.S. types, but with slight modification of inhaul gear. Methods of attachment also same as British Navy.

## VII.—Searchlights.

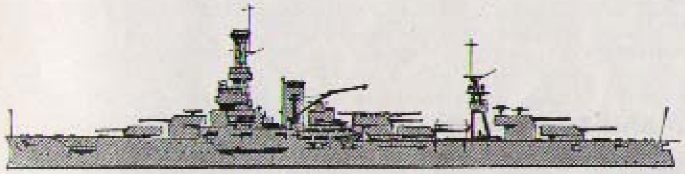
No details known, but in latest ships are of controlled type, as in British Navy. Battleships mostly carry 8 per ship.

## VIII.—Aircraft.

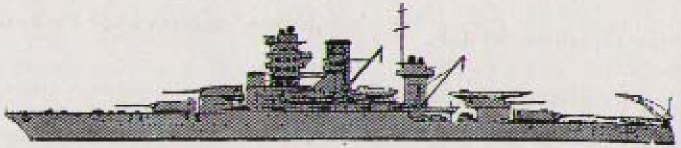
All battleships carry 3 'planes and one or two catapults; in most ships, latter are of new explosive type.



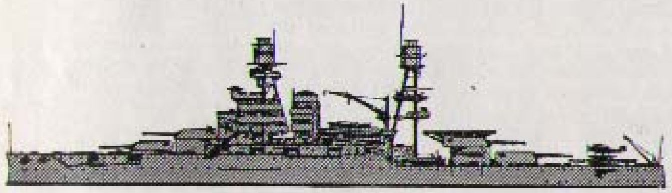
New York.
(Texas, Platform above foretop).



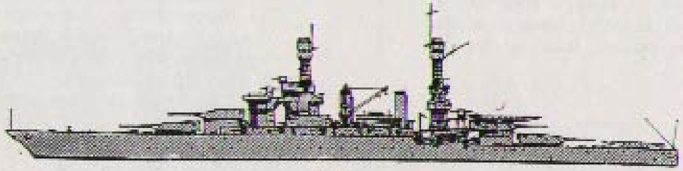
Arkansas.



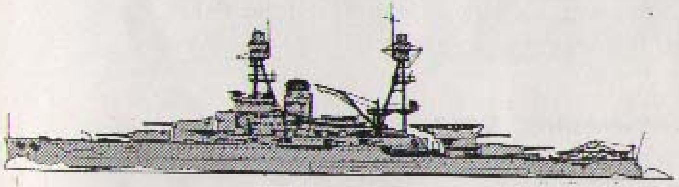
New Mexico *class.*



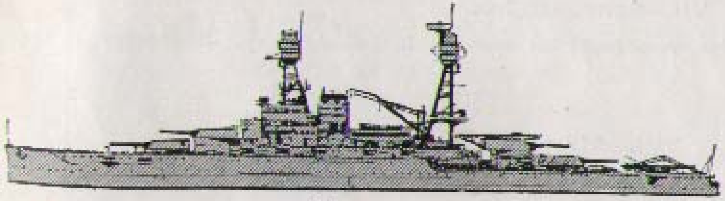
Pennsylvania. Arizona.



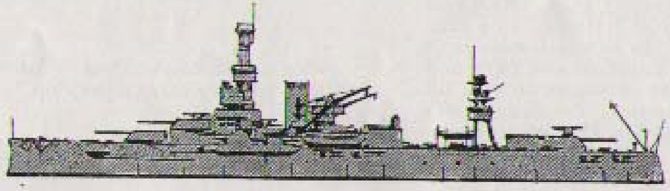
Maryland and California *classes.*



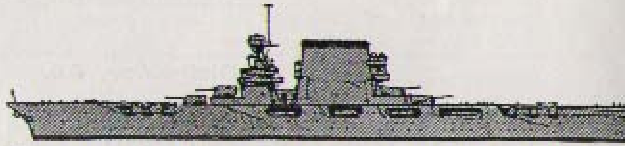
Oklahoma.



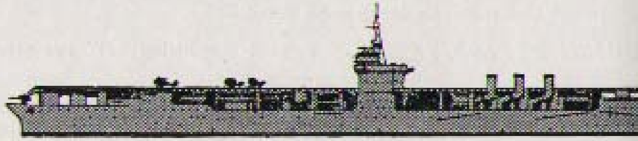
Nevada.



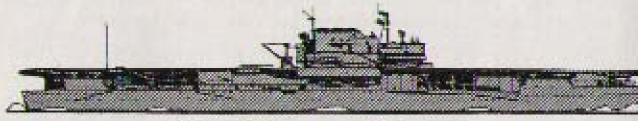
Wyoming.



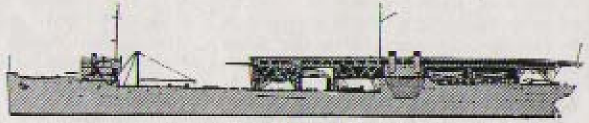
Saratoga (with thick vertical stripe down middle of funnel).
Lexington.



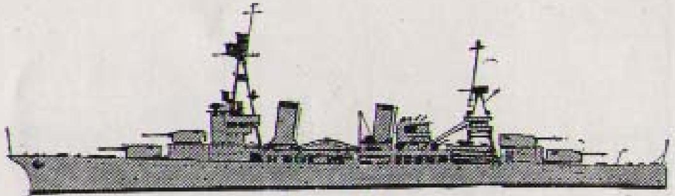
Ranger.



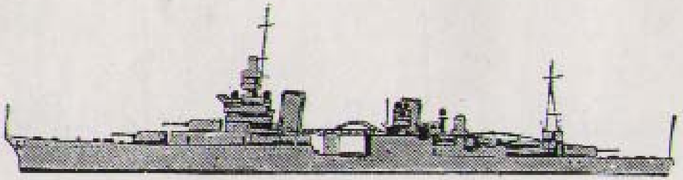
†Yorktown. Enterprise.



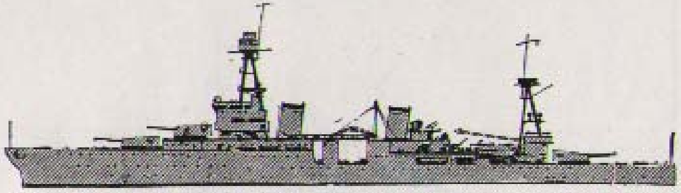
Langley.



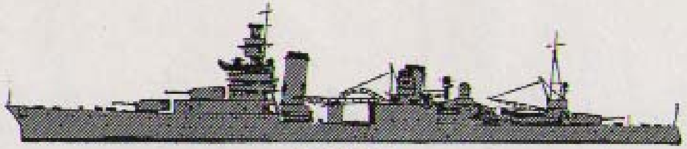
PENSACOLA *class.*



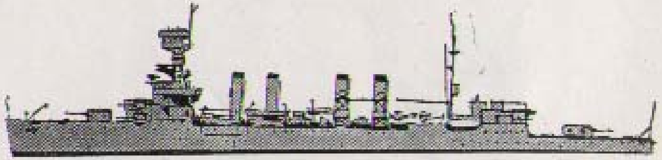
INDIANAPOLIS.



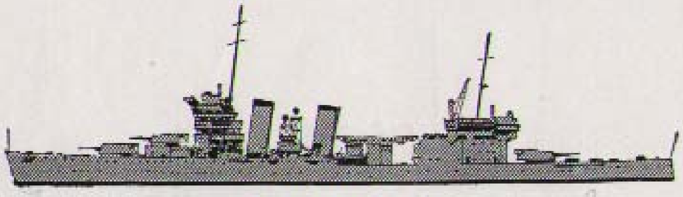
HOUSTON. AUGUSTA. CHICAGO.



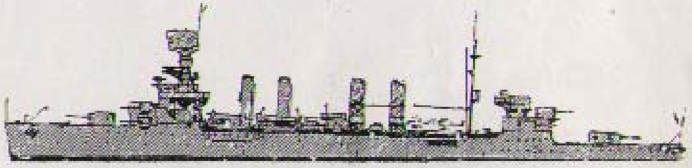
PORTLAND.



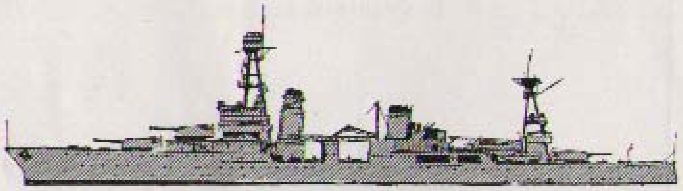
OMAHA *class.*



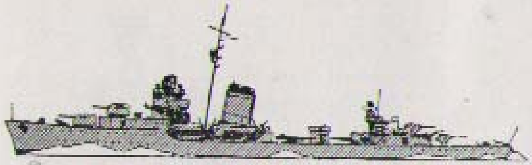
NEW ORLEANS *class.*
(Some have thinner funnels).



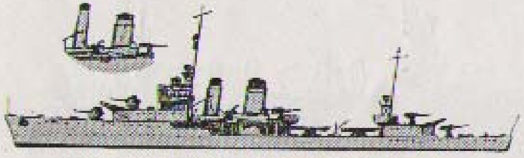
MARBLEHEAD.



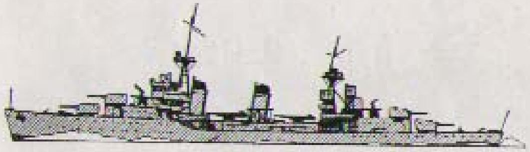
CHESTER. NORTHAMPTON. LOUISVILLE.



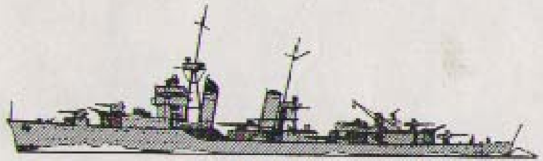
3 GRIDLEY *class.* 10
(Some have S.L. platform between T.T.)



FARRAGUT *class.* (Part sketch, DEWEY) 8

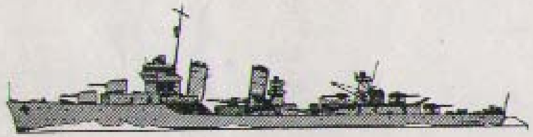


PORTER *class.* 3

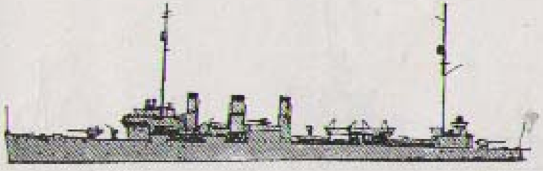


16

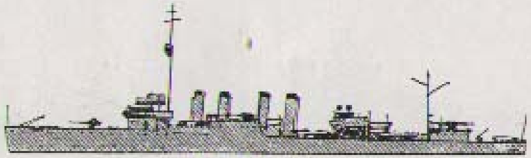
MAHAN *class.*
(Some lack clinker screen to fore funnel).



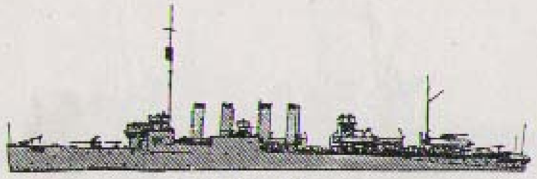
DUNLAP. FANNING. 2



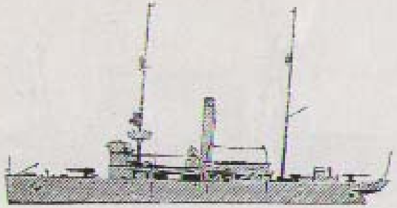
CONNOR. STOCKTON. 2



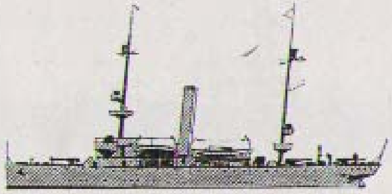
Flush Deckers. 153



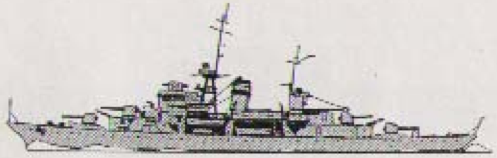
Light Mine Layers. 4



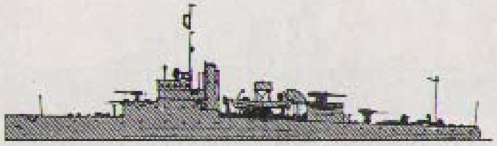
SACRAMENTO.



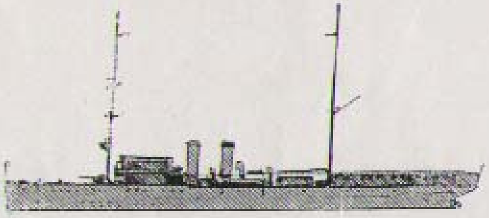
ASHEVILLE *class.*



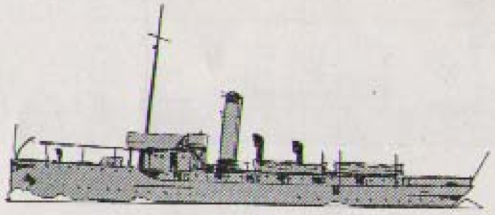
CHARLESTON, ERIE



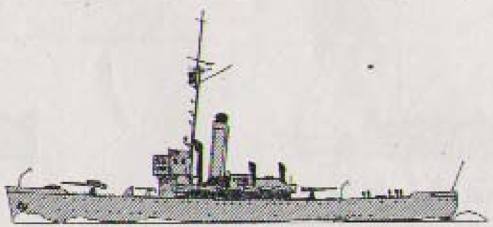
EAGLE boats.



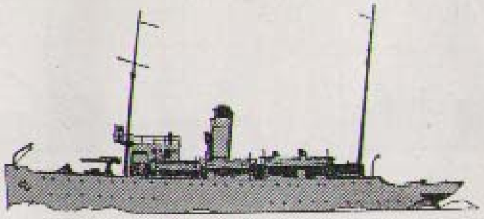
ISABEL.



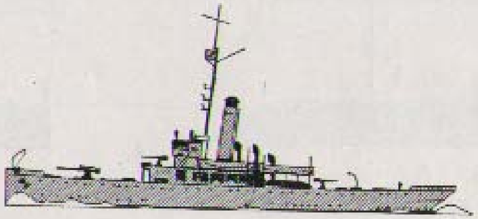
PAMLICO



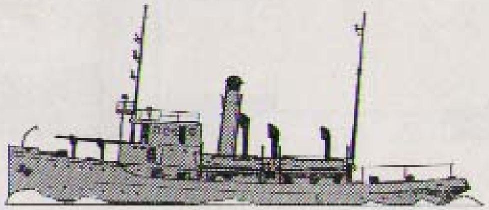
CHELAN *class.*



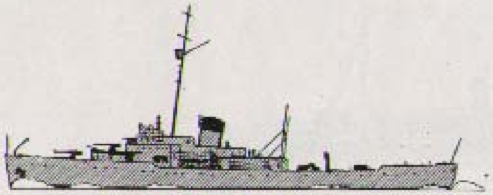
UNALGA.



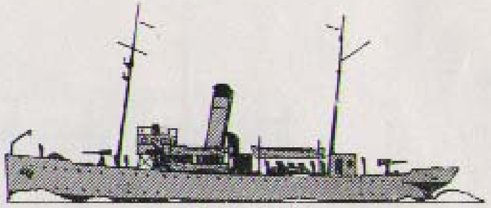
HAIDA *class.*



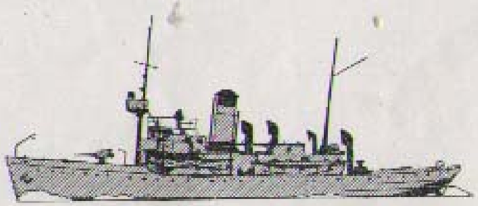
SHAWNEE.



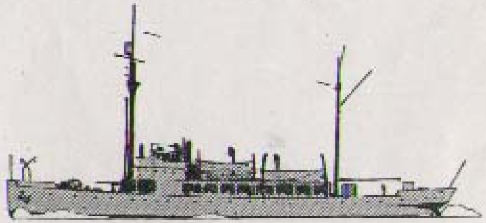
G. W. CAMPBELL *class.*



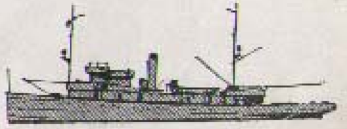
TALLAPOOSA.
(OSSIPEE similar).



ALGONQUIN *class.*



NORTHLAND.

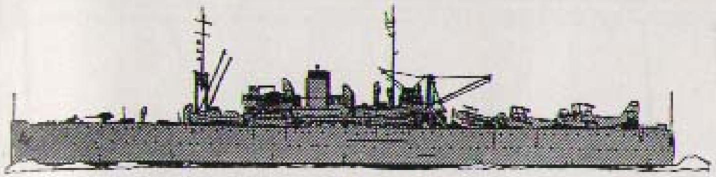


"BIRD" *class.*
(*Minesweepers.*)

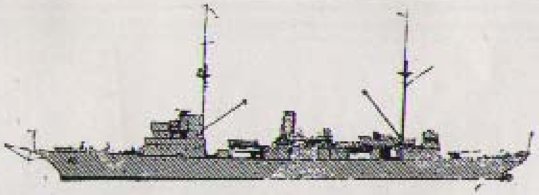
|  | Действ. флот |  |  | Резерв |  |
|---|---|---|---|---|---|
|  |  |  |  | I очер. |  |
|  | 1 ТО | 2 АТЛ | Σ | 3 ТО | 4 АТЛ |
| ЛК | 2. | 2. | 4 | 3. | 3. |
| АВ | 9. | 4. | 13 | 2. | 3. |
| ЭДВ | ~~8~~9. | 4. | 12 | 8 | 4 |
| Кр<br>Крл | 20. | 8. | 28 | ~~8~~7 | $9^{5}_{5}$ |
| ЭМ | ~~81~~83 | ~~59~~ 53 | 135 | 18. | ~~22~~ 21 |
| Эск ЭМ | 16. | 20. | 36 | – | 4. |
| ПЛ | ~~39~~38 | 51. | 90 | – | – |
| ТМЗ ТЩ etc. | 74 | 60 | 134 | – | – |

[illegible] 3/43

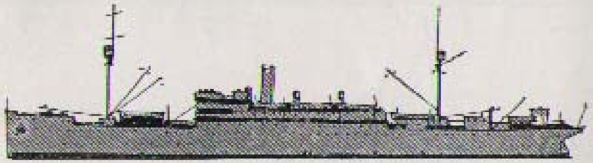
|  |  |  |  |
|---|---|---|---|
| БТЩ | 12 | 8 |  |
| ТЩ | 15 | 14 | 4 |
| МЗ | 5 | 5 | 2 |
| десант тр | 8 | 6 |  |
| — " — [illegible] | 2 | 2 |  |
| Транспорт | 25 | 19 |  |
| Вспомог. [illegible] | 6 | – |  |



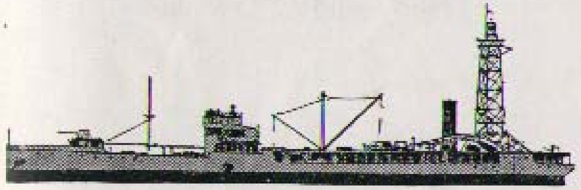
Wright.



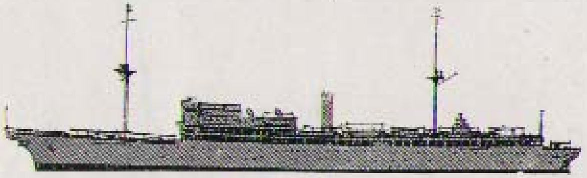
Bushnell.



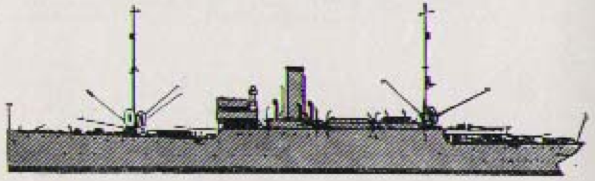
Bridgeport.



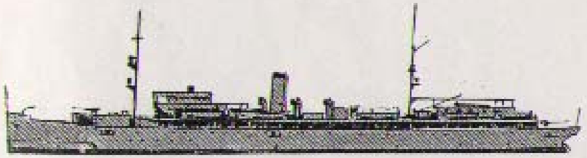
Patoka.



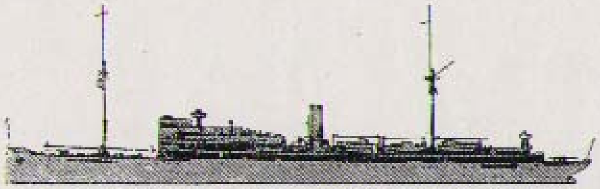
Holland.
(Topmasts now shortened).



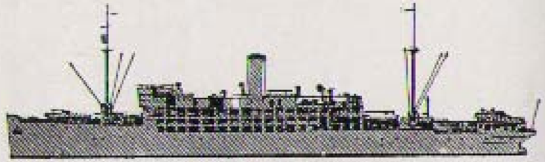
Camden.



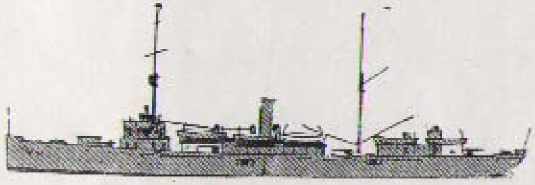
Beaver.



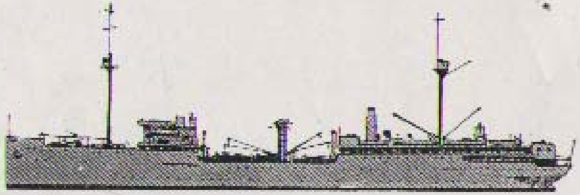
Whitney *class*.



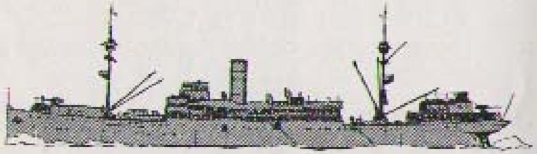
Canopus.



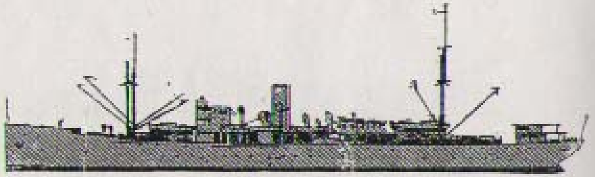
Melville.



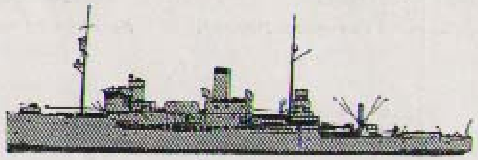
Medusa.

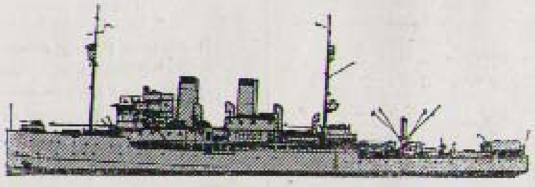


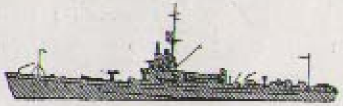
Black Hawk.



Altair *class*.


Oglala.


Aroostook.


S.C. boats.

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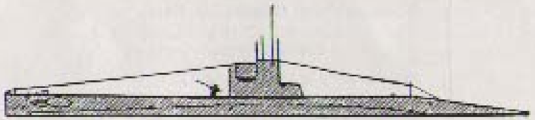
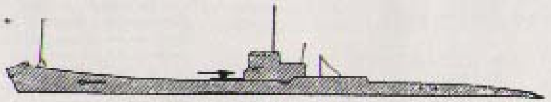
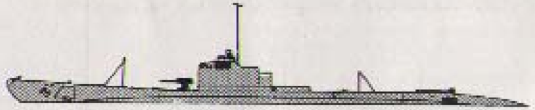
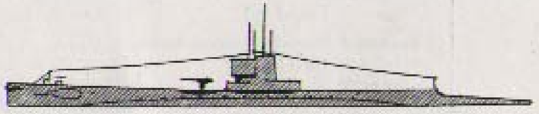
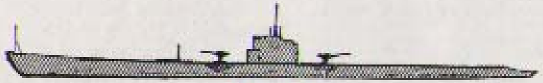
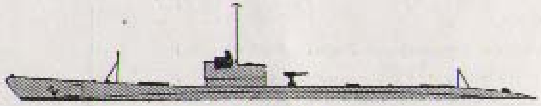

"O" *class.* 8

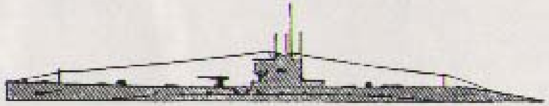

Barracuda *class.* 3

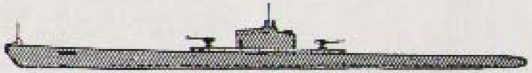

Dolphin. 1

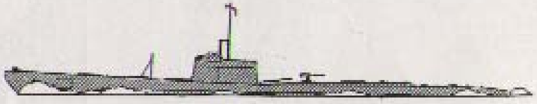

"R." *class.* 19

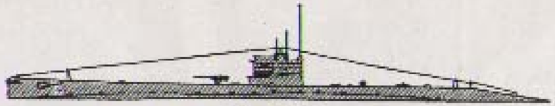

Argonaut. 1


Cachalot *class.* 2

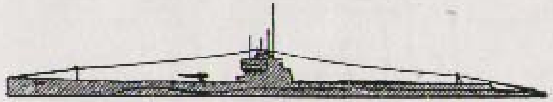

S. 1, 3, 6-41 31


Narwhal *class.* 2


Pike *class.* 10
(Perch *class* similar).


S. 42-47. 6

4


S. 48. 1

## Battle Force

### United States Fleet.

Pennsylvania (*flag*)

### Battle Force. California (*flag*)

### Battleships. West Virginia (*flag*)

| *Battleship Division* 1 | *Battleship Division* 3 |
|---|---|
| Arizona (F) | Idaho (F) |
| Nevada | Mississippi |
| Pennsylvania (F F) | New Mexico |

| *Battleship Division* 2 | *Battleship Division* 4 |
|---|---|
| Tennessee (F) | West Virginia (F) |
| Oklahoma | Colorado |
| California (F F) | Maryland |

### Cruisers, Battle Force. Trenton (*flag*)

| *Cruiser Division* 2 | *Cruiser Division* 3 |
|---|---|
| Trenton (F) | Concord (F) |
| Marblehead | Cincinnati |
| Memphis | Milwaukee |
| Richmond | Omaha (under refit) |

## Destroyers.

### Destroyer Flotilla One. Raleigh (*flag*)

Dobbin (*tender*) Whitney (*tender*)

*Destroyer Squadron One* Phelps (*flag*)
*Destroyer Squadron Two*—Porter (*flag*)
*Destroyer Squadron Three* Clark. (*flag*)
*Destroyer Squadron Nine*—Sampson (*flag*)

### Destroyer Squadron One. Phelps (*flag*)

| *Des. Division One* | *Des. Division Two* |
|---|---|
| Dewey (F) | Aylwin (F) |
| Hull | Dale |
| MacDonough (R F) | Farragut (R F) |
| Worden | Monaghan |

### Destroyer Squadron Two. Porter (*flag*)

| *Des. Division Three* | *Des. Division Four* |
|---|---|
| Dratton (F) | Cushing (F) |
| Flusser | Perkins |
| Lamson (R F) | Preston (R F) |
| Mahan | Smith |

### (1) Destroyer Squadron Three. Clark (*flag*)

| *Des. Division Five* | *Des. Division Six* |
|---|---|
| Cassin (F) | Case (F) |
| Conyngham | Shaw |
| Downes (R F) | Cummings (R F) |
| Reid | Tucker |

### (2) Destroyer Squadron Nine.

(3) Sampson (*flag*)

| (1) *Des. Division Seventeen* | (2) *Des. Division Eighteen* |
|---|---|
| McDougal (F) | Somers (F) |
| Winslow | Warrington |
| Moffett (R F) | (3) Davis (R F) |
| Balch | (3) Jouett |

### Destroyer Flotilla Two. Detroit (*flag*)

Altair (*tender*) for Squadrons 4, 14
Melville (*tender*) for Squadrons 6, 11, 12

*Destroyer Squadron Four*—Selfridge (*flag*)
*Destroyer Squadron Eleven*—Hopkins (*flag*)
*Destroyer Squadron Twelve* Borie (*flag*)
*Destroyer Squadron Fourteen*—Dallas (*flag*)
*Destroyer Squadron Six*—McCall (*flag*)

### (4) Destroyer Squadron Four.

Selfridge (*flag*)

| *Des. Division Seven* | *Des. Division Eight* |
|---|---|
| Mugford (F) | Dunlap (F) |
| Gridley | Ralph Talbot |
| Blue (R F) | Fanning (R F) |
| Bagley | Patterson |

### (5) Destroyer Squadron Six. McCall (*flag*)

| *Des. Division Eleven* | *Des. Division Twelve* |
|---|---|
| Henley (F) | Benham (F) |
| Helm | (3) Ellet |
| Jarvis (R F) | Maury (R F) |
| Craven | (3) Mayrant |

(1) To be organized in 2nd Quarter.
(2) Will not be organized during fiscal year 1938.
(3) Will not be commissioned during fiscal year 1938.
(4) To be organized in 3rd Quarter.
(5) To be organized in 4th Quarter.

### Destroyer Squadron Eleven. Hopkins (*flag*)

| *Des. Division Twenty-One* | *Des. Division Twenty-Two* |
|---|---|
| Brooks (R F) | Barry (F) |
| Fox | Gilmer |
| Hatfield (F) * | Childs (R F) |
| Kane * | Williamson |
| Goff * | |
| Reuben James * | |

### Destroyer Squadron Twelve. Borie (*flag*)

| *Des. Division Twenty-Three* (1) | *Des. Division Twenty-Four* |
|---|---|
| Lawrence (F) | Perry (F) |
| Sands | Trever |
| King (R F) | Zane (R F) |
| Humphreys | Wasmuth |

### (1) Destroyer Squadron Fourteen.

Dallas (*flag*)

| *Des. Division Twenty-Seven* | *Des. Division Twenty-Eight* |
|---|---|
| McCormick (F) | Southard (F) |
| Broome | Chandler |
| Simpson (R F) | Hovey (R F) |
| Truxtun | Long |
| (2) MacLeish | |

* Two destroyers (to be recommended by C.-in-C.) to be decommissioned in 3rd Quarter.
(1) To be decommissioned in 4th Quarter.
(2) To be decommissioned in 2nd Quarter.

### Aircraft. Saratoga (*flag*)

| *Carrier Division One* | *Carrier Division Two* |
|---|---|
| Lexington | Enterprise ** |
| Ranger | Yorktown (F) ** |
| Saratoga (F) | |

### Minecraft. Oglala (*flag*)

| *Mine Division One* | *Mine Division Two* |
|---|---|
| Preble | Lark |
| Pruitt (F) | Quail |
| Sicard | Tanager (F) |
| Tracy | Whippoorwill |

** To be organized during second quarter and operate under Chief of Naval Operations. Joins fleet in fourth quarter.

### Scouting Force. Indianapolis (*flag*)

### Cruisers, Scouting Force. Chicago (*flag*)

| *Cruiser Division Four* | *Cruiser Division Six* |
|---|---|
| Northampton (F) | Minneapolis (F) |
| Salt Lake City | Astoria |
| Pensacola | New Orleans |
| Houston (R F, C.-in-C.) | Indianapolis |

| *Cruiser Division Five* | *Cruiser Division Seven* |
|---|---|
| Chicago (F) | San Francisco (F) |
| Portland | Tuscaloosa |
| Chester | Quincy |
| Louisville | Vincennes |

### Aircraft Scouting Force.

### (1) Patrol Wing One.

Wright (*seaplane tender*)
Langley (*seaplane tender*)
Sandpiper (*seaplane tender, small*)
Lapwing (*seaplane tender, small*)

### (2) Patrol Wing Two.

*Fleet Air Base, Pearl Habour*
Swan (*seaplane tender, small*) (F)
Pelican (*seaplane tender, small*)
Avocet (*seaplane tender, small*)

### (3) Patrol Wing Three.

*Fleet Air Base, Coco Solo*
Gannet (*seaplane tender, small*) (F)
* Teal (*seaplane tender, small*)

### (4) Patrol Wing Four.

* Thrush (*seaplane tender, small*) (F)

### (5) Patrol Wing Five.

** Owl (*seaplane tender, small*) (F)

* *Thrush* and *Teal* will interchange during the 2nd quarter, 1938.

** *Owl* assigned additional duty, Fifth Naval District.

### Submarine Force.

Bushnell (*flag*) Litchfield (*tactical flag*)

### Submarine Base, New London.

Falcon (*rescue vessel*)

### Submarine Division Four.

R—2, 4, 10, 11, 13, 14 (F)

### Experimental Division One

Semmes S—20, S—30
*Submarine Squadron Three*
*Submarine Base, Coco Solo*
*Submarine Division* 11
S—42, 43, 44 (F), 45, 46, 47
Mallard (*rescue vessel*)

### Submarine Squadron Four.

| | |
|---|---|
| Beaver (*tender*) | Seagull (*tender*) |
| Keosanqua (*tender*) | Widgeon (*rescue vessel*) |

### Submarine Base Pearl Harbour.

| *Sub. Division Seven* | *Sub. Division Eight* |
|---|---|
| S—18, 21, 22, 23 (F), 34, 35 | S—24, 25, 26, 27 28 (F), 29 |
| Argonaut (F F) | |

### Destroyer Division 19.

| | |
|---|---|
| Rathburne (F) | Waters |
| Talbot | Dent |

### Submarine Squadron Six

Nautilus (*flag*)
Holland (*tender*) Ortolan (*rescue vessel*)

| *Sub. Division* 12 | *Sub. Division* 13 | *Sub. Division* 14 |
|---|---|---|
| Dolphin | Cachalot | Perch (F) |
| Narwhal | Cuttlefish | Permit |
| Nautilus (F) | Porpoise | Pickerel |
| | Pike | Plunger |
| | Shark (F) | Pollack |
| | Tarpon | Pompano |

### Training Detachment. Texas (*flag*)

Arkansas New York Wyoming

### Destroyer Squadron Ten

Decatur (*flag*)

| *Des. Division* 29 | *Des. Division* 30 | *Des. Division* 31 |
|---|---|---|
| Badger | Jacob Jones | Leary |
| Herbert | Roper | Schenck |
| Tillman | J. Fred Talbot | Dickerson |
| Tattnall | Fairfax | Hamilton |

## Base Force

Argonne (*flag*)
Rigel (*tender*)

| | | | |
|---|---|---|---|
| ARD—1 | Bridge | Medusa | Robin |
| Arctic | Cuyama | Neches | Sonoma |
| Algorma | Grebe | Partridge | Tern |
| Bobolink | Kalmia | Pinola | Utah |
| Brant | Kanawha | Rail | Vestal |
| Brazos | Kingfisher | Relief | Vireo |

### Mobile Target Division One

| | |
|---|---|
| Dorsey (F) | Lamberton |
| Elliot | Boggs |

## Asiatic Fleet

Augusta (*flag*)

| | |
|---|---|
| Asheville | Sacramento |
| Isabel | Tulsa |

### Yangtze Patrol.

Guam
Luzon (F)
Monocacy
Oahu
Panay
Tutuila

### South China Patrol

Mindanao (F)

### Destroyer Squadron Five.

Paul Jones (*leader*)
Blackhawk (*tender*)

| *Des. Division* 13 | *Des. Division* 14 | *Des. Division* 15 |
|---|---|---|
| Alden (R F) | Bulmer (R F) | John D. Ford (R F) |
| Barker | Edsall | Peary (F) |
| J. D. Edwards | Parrott | Pillsbury |
| Whipple (F) | Stewart (F) | Pope |

### Submarine Squadron Five.

Canopus (*flag*)

### Submarine Division Ten.

S—36, 37 (F), 38, 39, 40, 41
Pigeon (*rescue vessel*)

### Mine Division Three.

Bittern Finch

### Aircraft Detachment.

Heron

### Auxiliary.

Pecos (F)

### Special Service Squadron.

Charleston

| | |
|---|---|
| Taylor | Erie 1 |
| Babbitt | |

### Squadron 40—T.

(Temporary duty in Spanish waters, operating under CNO).

| | |
|---|---|
| Hatfield 2 | Kane 2 |
| Claxton 2 | Manley 2 |

## Summary of Naval Forces, 1937.

| | *Bldg.* | *Built* |
|---|---|---|
| 17 *Battleships* | | |
| Washington .. .. .. .. | 2 | — |
| Colorado .. .. .. .. | — | 3 |
| California .. .. .. .. | — | 2 |
| New Mexico .. .. .. | — | 3 |
| Pennsylvania .. .. .. | — | 2 |
| Nevada .. .. .. .. | — | 2 |
| New York .. .. .. .. | — | 2 |
| Arkansas .. .. .. .. | — | 1 |
| 6 *Aircraft Carriers* | | |
| Wasp .. .. .. .. .. | 1 | — |
| Enterprise .. .. .. .. | 2 | — |
| Ranger .. .. .. .. | — | 1 |
| Lexington .. .. .. .. | — | 2 |
| 18 *Heavy Cruisers* | | |
| Minneapolis .. .. .. .. | 1 | 7 |
| Portland .. .. .. .. | — | 2 |
| Augusta .. .. .. .. | — | 6 |
| Pensacola .. .. .. .. | — | 2 |

WASHINGTON CLASS—4 Ships.

4 4

## NORTH CAROLINA, WASHINGTON.

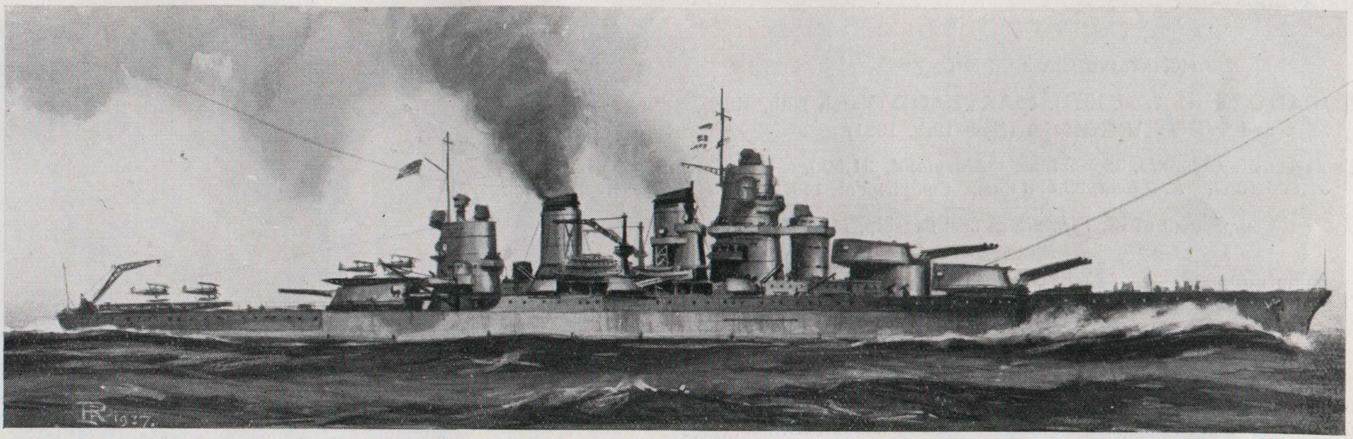
and 2 more (Names not fixed).

*Standard* displacement : 35,000 tons. Complement :

Length : 750 feet. Beam : Draught :

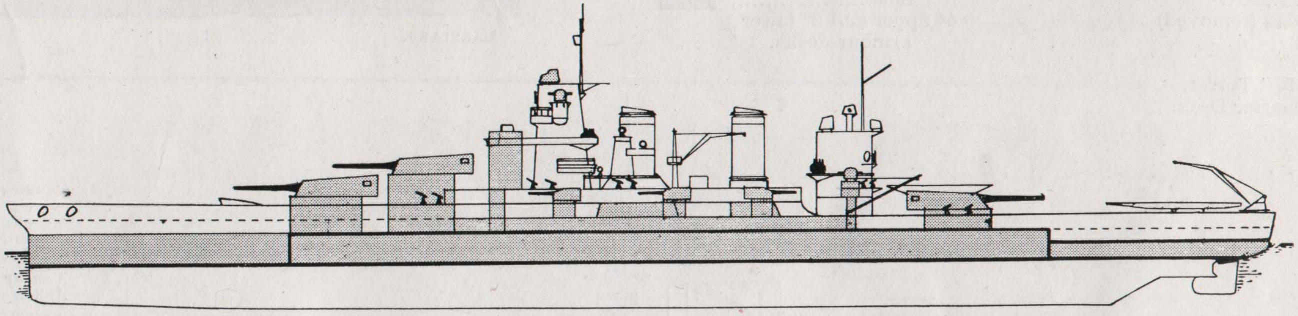
Guns:
**9**—16 inch.
**16**—5 inch, 35 cal.
Aircraft : 3

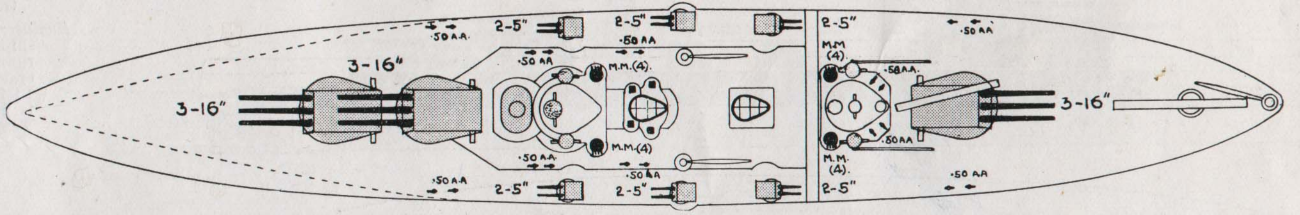
Armour: (Unofficial)
16″ Belt amidships.
6″ Upper Deck.
4″ Lower Deck.



1937 *Illustration.*

*Note to Plan.*—This is believed to represent with accuracy the design as proposed at the date of laying down of the *North Carolina ;* but it is quite likely that further modifications may be made in the course of construction, and that the appearance of the ships when completed may vary from that shown here.





Machinery : Geared turbines. Designed speed : 28 kts. (30 kts. expected). Watertube boilers of a new pattern. Oil fuel.

*General Notes.*—Delays in laying down first 2 ships have been due to changes in design, labour difficulties, late delivery of materials and necessity for extending and strengthening building ships. Ships are to be fully 35 per cent welded. Engine room will be arranged on a novel plan to save weight. Cost $60,000,000 apiece.

| *Programme* | *Name* | *Builder* | *Machinery* | *Laid down* | *To be completed* |
|---|---|---|---|---|---|
| 1937 | *N. Carolina* | New York Navy Yard | | Oct. 27, 1937 | Aug., 1941 |
| | *Washington* | Philadelphia Navy Yard | | 1938 (?) | Nov., 1941 |
| 1938 | One ship<br>One ship | (Not assigned) | | *To be* 1938 | 1942 |

## Summary of Naval Forces

(continued from preceding page).

| | | *Bldg.* | *Built* |
|---|---|---|---|
| 19 | *Light Cruisers* | | |
| | BROOKLYN | 7 | 2 |
| | OMAHA | — | 10 |
| 1 | *Training Ship* | | |
| | WYOMING | — | 1 |
| 234 | *Destroyers* | | |
| | PORTER | 5 | 8 |
| | FARRAGUT, Etc. | 33 | 33 |
| | "FLUSH DECKERS" | — | 155 |
| 8 | *Light Minelayers* | | |
| | ANTHONY | — | 8 |
| 100 | *Submarines* | | |
| | SARGO | 10 | — |
| | SALMON | 6 | — |
| | PERCH | — | 6 |
| | PIKE | — | 4 |
| | DOLPHIN | — | 1 |
| | CACHALOT | — | 2 |
| | NARWHAL | — | 2 |
| | ARGONAUT | — | 1 |
| | BARRACUDA | — | 3 |
| | S 48 | — | 1 |
| | S 42 | — | 6 |
| | S 18 | — | 24 |
| | S 3 | — | 7 |
| | R | — | 19 |
| | O | — | 8 |
| 12 | *Gunboats* | | |
| | CHARLESTON | — | 2 |
| | SACRAMENTO | — | 1 |
| | TULSA | — | 2 |
| | RIVER GUNBOATS | — | 7 |
| 33 | *Patrol Vessels* | | |
| | SUBMARINE CHASERS | — | 31 |
| | EX-YACHTS | — | 2 |
| 3 | *Aircraft Tenders* | | |
| | LANGLEY | — | 1 |
| | PATOKA | — | 1 |
| | WRIGHT | — | 1 |
| 2 | *Minelayers* | | |
| | AROOSTOOK | — | 2 |
| 54 | *Auxiliaries* | | |
| | DESTROYER TENDERS | — | 8 |
| | SUBMARINE TENDERS | — | 6 |
| | REPAIR SHIPS | — | 3 |
| | AMMUNITION AND STORE SHIPS | — | 6 |
| | COLLIERS | — | 3 |
| | OILERS | — | 16 |
| | CARGO SHIPS | — | 7 |
| | TRANSPORTS | — | 2 |
| | HOSPITAL SHIPS | — | 2 |
| 1 | *Surveying Ship* | — | 1 |
| 43 | *Minesweepers* | — | 42 |
| 3 | *Target Ships* | — | 3 |
| 28 | *Oceangoing Tugs* | — | 28 |

1. Iowa
1 New Jersey
2 Missouri
2 Wisconsin
3 Indiana
3 Massachusets
3 Alabama
4 S. Dakota
4 N Carolina

(MARYLAND CLASS—3 SHIPS.)

**COLORADO** (March 22nd, 1921), **MARYLAND** (March 20th, 1920), and **WEST VIRGINIA** (Nov. 19th, 1921).

*Standard* displacement, *Colorado*, 32,500 tons. *Maryland*, 31,500. *W. Virginia*, 31,800 tons. *Full load*, 33,590 tons. Complement, 1407.

Complement of *W. Virginia* as fleet flagship, 1486.

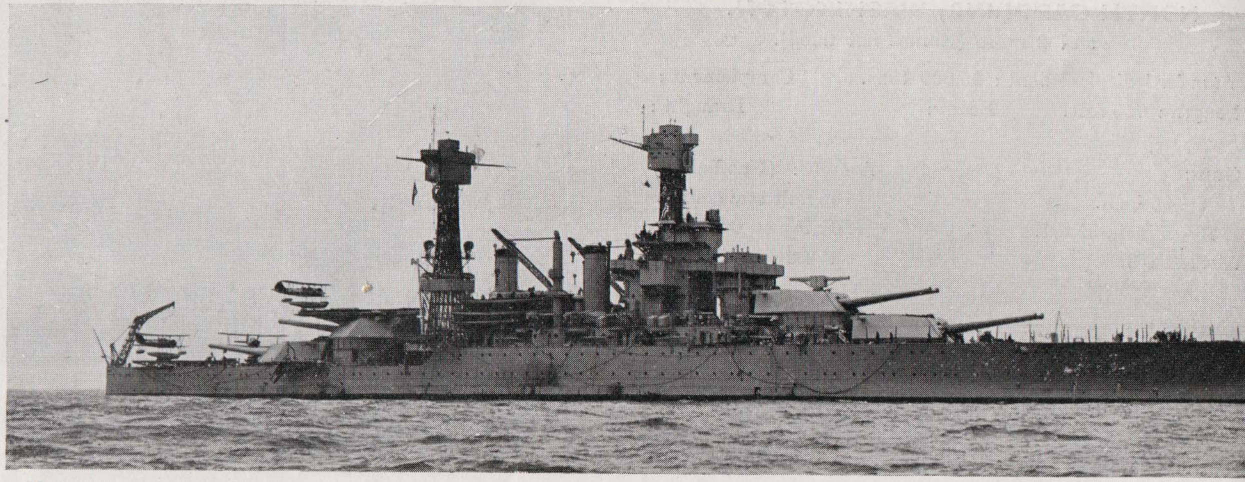
Length (*w.l.*), 600 feet. (*o.a.*), 624 feet.
Beam, 97½ feet.

*Mean* draught, 30½ feet 29⅔ feet and 30 feet respectively.
*Max.* draught of all, 35 feet.

Guns:
- 8—16 inch, 45 cal. Mk. I.
- 12—5 inch, 51 cal.
- 8—5 inch (AA.) Mk. X.
- 4—6 pdr. (saluting).
- 2—1 pdr.
- 2—M.G.
- **11**— M.G., AA.

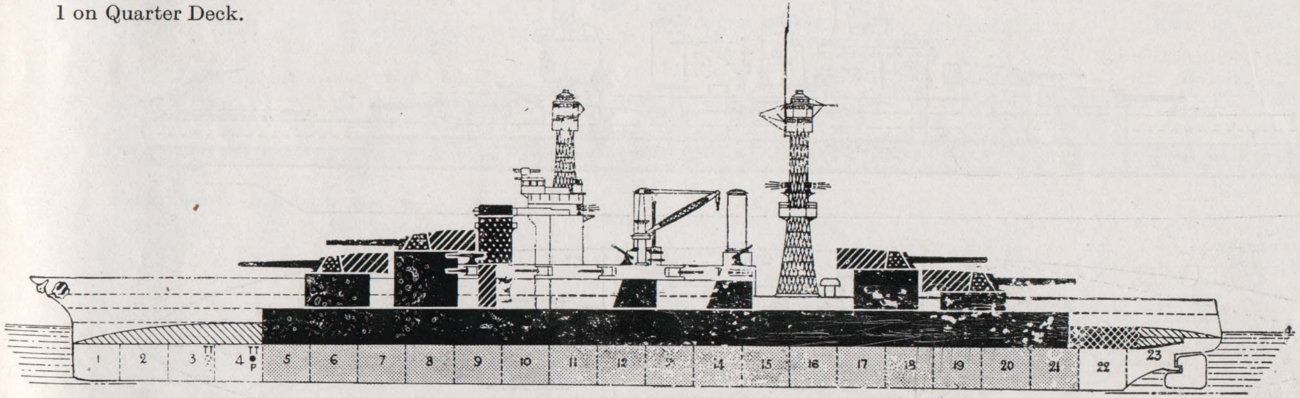
Torpedo tubes (removed)
Aircraft: 3
Catapults:
- 1 on "X" Turret.
- 1 on Quarter Deck.

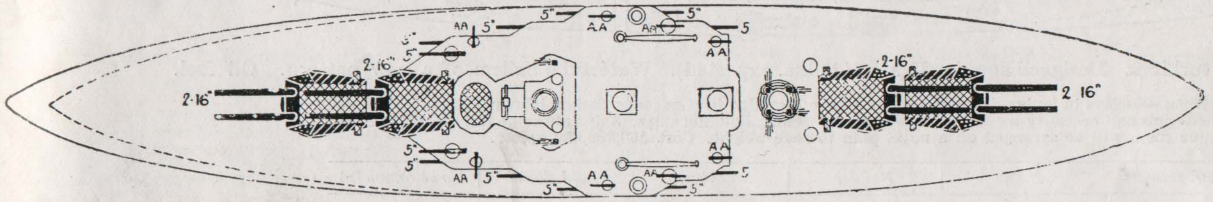
Armour:
- 16"—14" Belt............... ■
- 8" Belt (aft) ........ ...... ▨
- 3" Deck (ends)............ ▨
- 16"—9" Funnel bases ... ■
- 18"—9" Turrets.......... ■
- 16" Conning tower and tube..................... ■
- 4" upper and 2" lower armour decks.



MARYLAND.

1935, *O. W. W*





Machinery: In *Colorado* Westinghouse turbines and electric drive; in *Maryland* and *W. Virginia*, G.E. turbines and electric drive. Designed S.H.P. 27,300 = 21kts. cf. trials. 4 shafts. Boilers: 8 Babcock & Wilcox. Fuel (oil only): *normal* 2500 tons; *maximum* 4000 tons (unofficial figures).

*Gunnery Notes.*—16 inch are a new model, successfully proved at Indian Head, 1917. M elevation 30°; Maximum range at this elevation unofficially stated to be 33,300 yards. electrically manœuvred and with electric hoists. Excepting increase of calibre to 16 inch, o as Notes for *Tennessee* Class. New director system installed, 1923. Main control is at a heigh feet above sea level

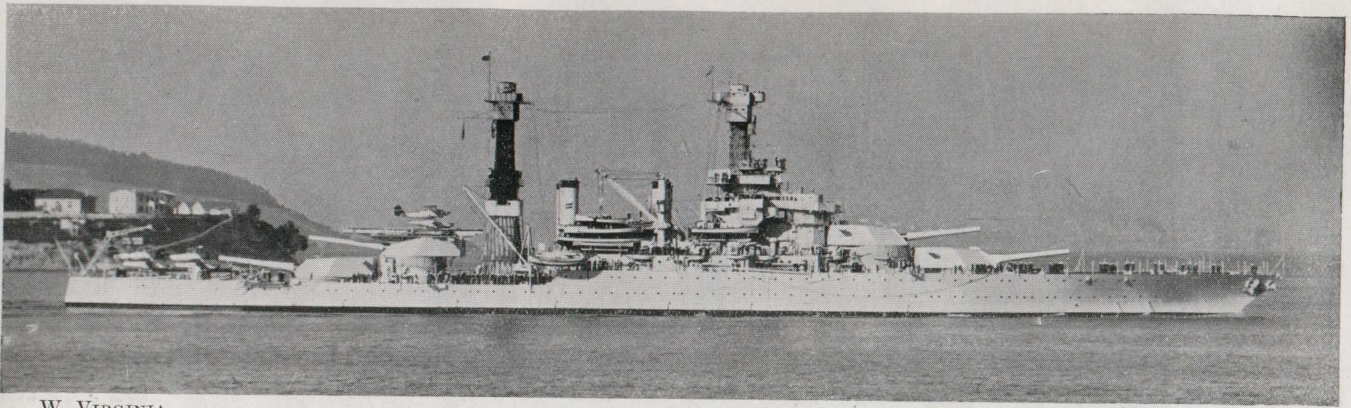
*Armour Notes.*
*Appearance Notes.* } As for *California* and *Tennessee.*

*Anti-Torpedo Protection.*—Ferrati type triple hull and minute internal subdivision by longitud transverse unpierced bulkheads.

*Engineering Notes.*—"Electric Drive" is identical with that for the *California* Class but ships, electric installation has been extended. Part of steam generated in boilers is dive running six auxiliary turbo-generators, supplying current to anchor gear, workshop lathe erating plant, bakeries, &c. Guns are also electrically manœuvred, ammunition hoists are In fact, every possible item of equipment, even down to potato peelers and ice-cream is run by electric power. Estimated weight of machinery, 2002 tons. Heating sur *Tennessee* on a later page.

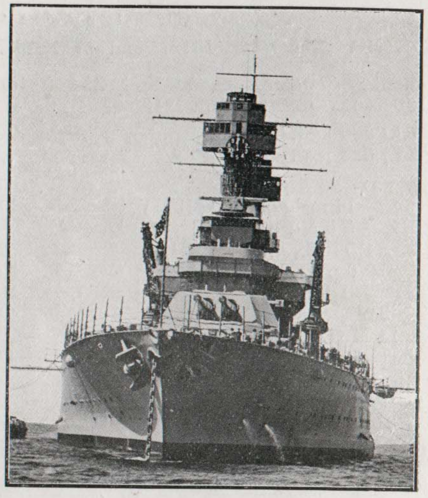
| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* | *Boilers* | *re* |
|---|---|---|---|---|---|---|---|
| *Colorado* | New York S.B. Co. | Westinghouse Co. | May '19 | Aug., '23 | 37.400 = 20·67 | Babcock | |
| *Maryland* | Newport News | Gen. Elec. Co. | Apl., '17 | July '21 | 36,167 = 21·07 | Babcock | |
| *W. Virginia* | Newport News | Gen. Elec. Co. | Apl., '20 | Dec. '23 | = 21·1 | Babcock | |

*General Notes.*—Authorised 1916 as *No. 45* (*Colorado*), *No. 46* (*Maryland*), and *No. 48* (*W. Virginia*). *W.* and *Maryland* both fitted as Flagships. Except for change in primary armament, and slight in displacement, they are identical in nearly all respects with *California* class. *Washington* scrapp completion under Naval Treaty of 1922.



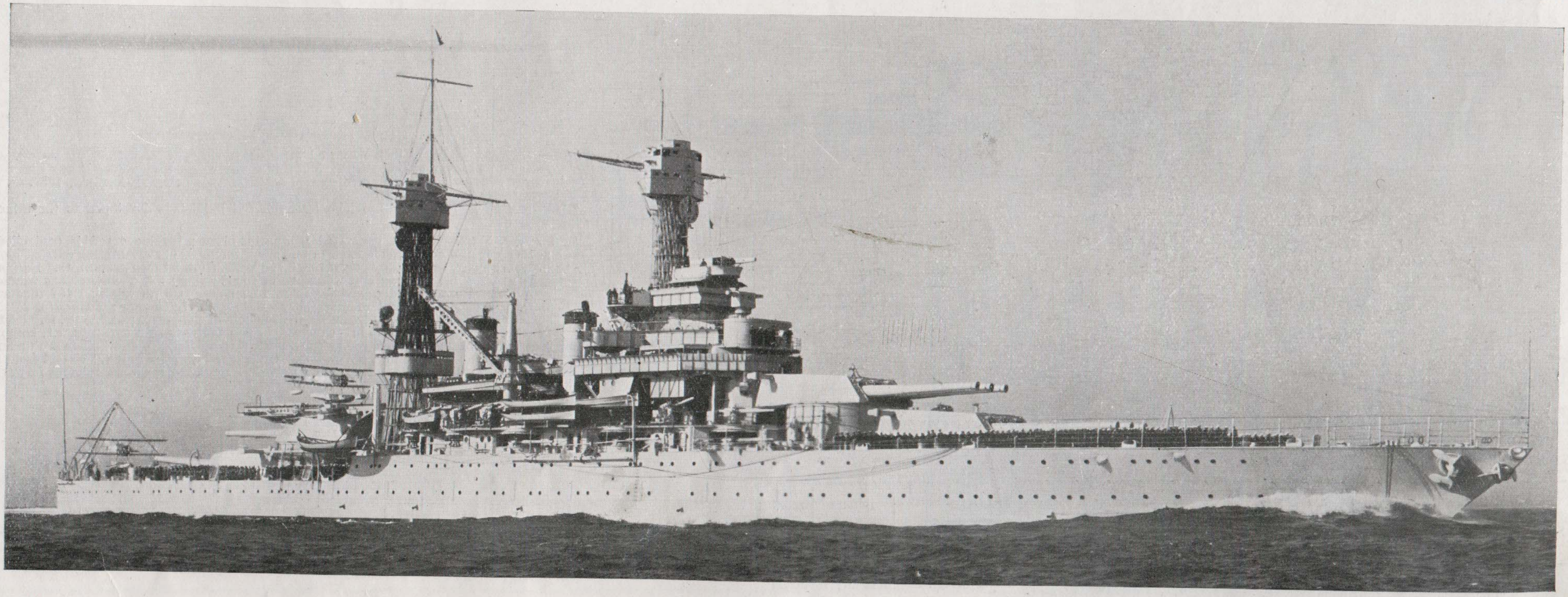
W. Virginia.

1935, *Bear Photo Service.*



W. Virginia—bow view.

1924 *Photo Abrahams.*



California.

1933 *Photo O. W. Waterman.*

(CALIFORNIA class—2 ships.)

**CALIFORNIA** (Nov. 20th, 1919) and **TENNESSEE** (April 30th, 1919).

Displacement: *Standard* 32,600 and 32,300 tons, respectively. *Full load*, 35,190 tons. Complement: 1,480.

ength (*w.l.*) 600 feet. (*o.a.*) 624 feet. Beam 97½ feet. *Mean* draught, 30½ feet, and 30⅓ ft. resp. *Max.* ,, 35½–35 feet, resp.

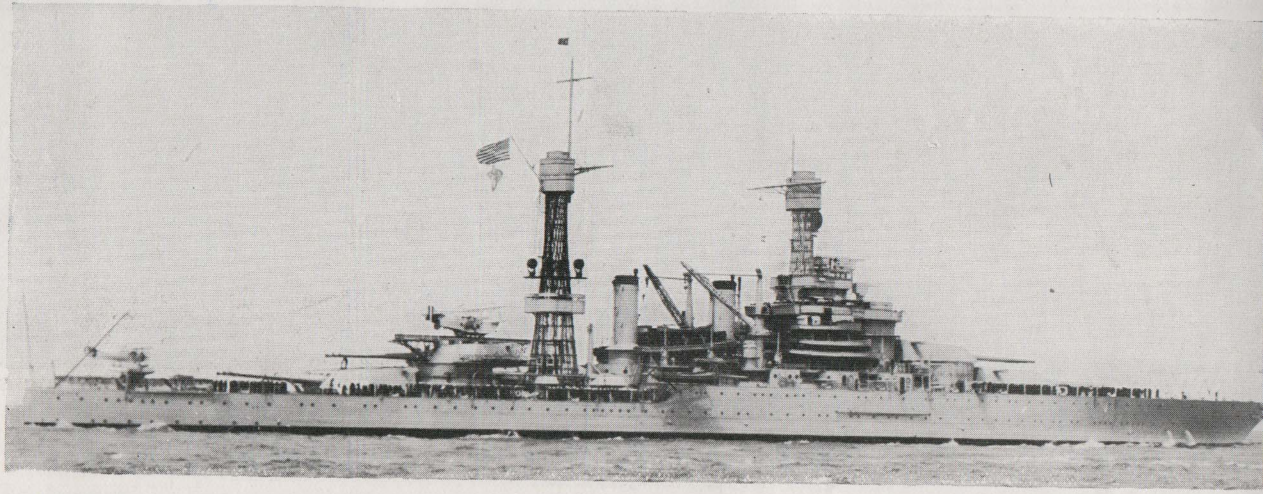
Guns:
- 12—14 inch, 50 cal., Mk. IV.
- 12—5 inch, 51 cal.
- 8—5 inch, 25 cal. AA.
- 4—6 pdr. (saluting).
- 2—1 pdr.
- 2 M.G.
- 11 M.G. AA.

Torpedo tubes (removed).
Aircraft: 3
Catapults:
- 1 on "X" turret.
- 1 on Q.D.

Armour:

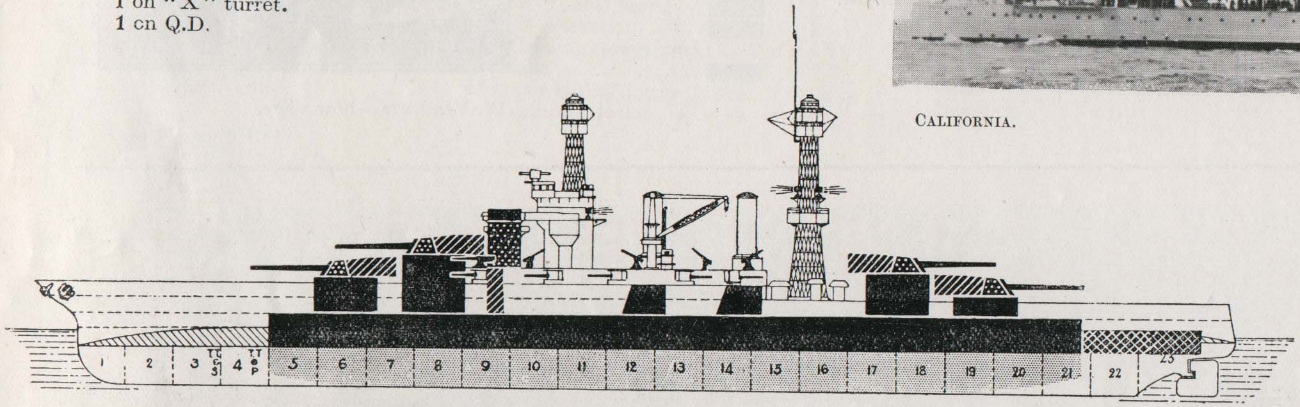
| | |
|---|---|
| 14″ Belt .................. | ■ |
| 8″ Belt (aft) .............. | ▦ |
| 3″ Deck (ends) .......... | ▨ |
| 15″—9″ Funnel bases ... | ■ |
| 18″—9″ Turrets........ | ■ |
| 16″ Conning tower and tube .................. | ■ |

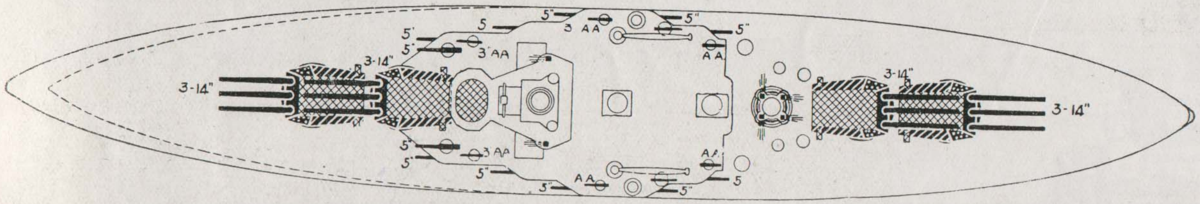
4″ upper 2″ lower armour decks



CALIFORNIA.

1930, *Officia*





Machinery: *California*, G. E. turbines and electric drive. *Tennessee*, Westinghouse turbines and electric drive. 4 shafts in both ships. Boilers: 8 Bureau Express type in *California*. 8 Babcock and Wilcox in *Tennessee*. Designed H.P.: 26,800 = 21 kts. Fuel (oil only): *normal* 2,200, *maximum* 3,328 tons.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Com-pleted* | *Refit* | *Trials* | *Boilers* | *Best recent speed* |
|---|---|---|---|---|---|---|---|---|
| *California*<br>*Tennessee* | Mare Island Y.<br>New York Yard | G. E. Co.<br>Westinghouse Co. | Oct.,'16<br>May,'17 | Aug.'21<br>June'20 | | 21·46<br>30,908 = 21·01 | Express<br>Babcock | |

*General Notes.*—Authorised 1915 as *No.* 43 (*Tennessee*) and 44 (*California*). The above design is practically identical with *New Mexico* class as originally completed. *California* fitted as Flagship.

**Gunnery Notes.*—The 14 inch mounted in separate sleeves; elevation, up to 30°. Maximu stated to be over 35,000 yards. Main guns controlled from upper storey and 5 inch fro storey of masthead tops. Fire control arrangements being modernised, 1937.

**Armour Notes.*—Internal subdivision by unpierced bulkheads developed to the utmost degre waterline.

*Engineering Notes.*—Current generated is quarter-phase; turbine speed is controlled by me governors; and control is located in one small room. Four alternating current motors, one propeller shaft, supplied by current at 3,400 volts, from 2 turbo-generators. *California* has cage winding for starting and wound-rotor for running; but *Tennessee* has wound-rotors purposes. Motors are designed for 24 and 36 poles. Oil for trials: 1,467 tons and 187 t water. Estimated weight of machinery: *California*, 1,805 tons; *Tennessee*, 2,045 tons. surface: 50,984 sq. ft. for Bureau Express boilers in *California*; 41,768 sq. ft. + 4,168 sq. ft. heated, for Babcock boilers in *Tennessee*. Each boiler is in a separate w.t. compartment. rooms are abeam of engine rooms (4 to port, 4 to starboard), and boilers are under central Turbines are in tandem on centre line. On *trials*, *Tennessee* brought to rest from full speed 3 minutes; tactical diameter: 700 yards (full helm, both screws turning forward).

Ak TOP Iowa
New Jersey

pesepl I Indiana
Massachusets
Alabama

Ата Missouri (kopen)
Wisconsin

peg I Washington
N Caroline
S.Dakota

(New Mexico Class—3 ships.)

| | | |
|---|---|---|
| **HO** | New York Shipbuilding Co. | (June 30th, 1917), |
| **SISSIPPI** | Newport News | (January 25th, 1917). |
| **/ MEXICO** | New York Navy Yard | (April 23rd, 1917), |

ent
d
{*Idaho* and *New Mexico*} 33,400 tons. *Mississippi* 33,000 tons.} Complement, 1323

*waterline*, 600 feet.
*over all*, 624 feet. } Beam, 106¼ feet

{*Mean* draught, Mississippi 29¼ft. ; others 29½ feet.
*Max.* ,, 34 feet

4 inch, 50 cal., Mk. IV.
inch, 51 cal.
inch (A.A.), 25 cal.
pdr. (saluting) in *Idaho* ;
4 – 6 pdr. in others
.G. AA.
3

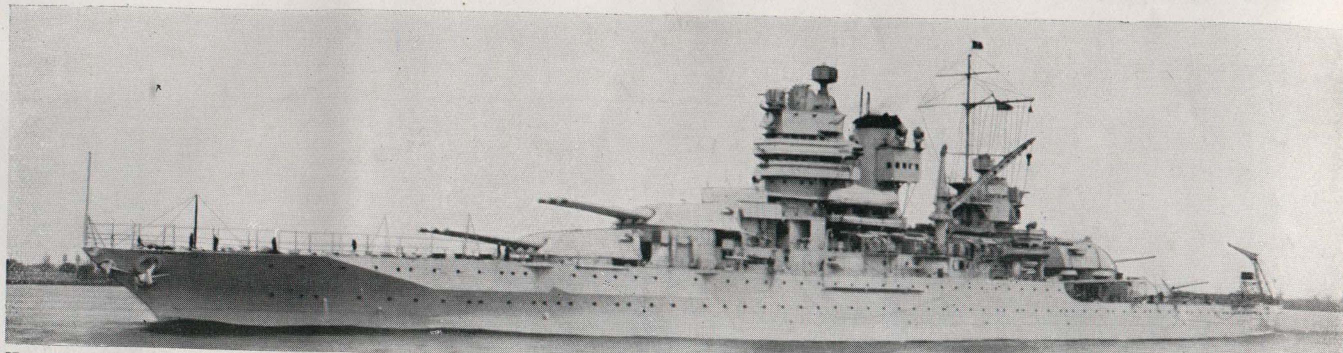
X" turret.
uarter deck.

*an.*—Torpedo tubes removed.

Armour :
14″ Belt (amidships) .. ... ■
8″ Belt (aft)........ ...... ▩
*″ Deck ends ...... ....... ▨
15″—9″ Funnel base ...... ■
18″--9″ Turrets ■ ●●●●● ▨
16″ Conning tower & tube ■

* Deck protection understood to be heavier than in any other ships.

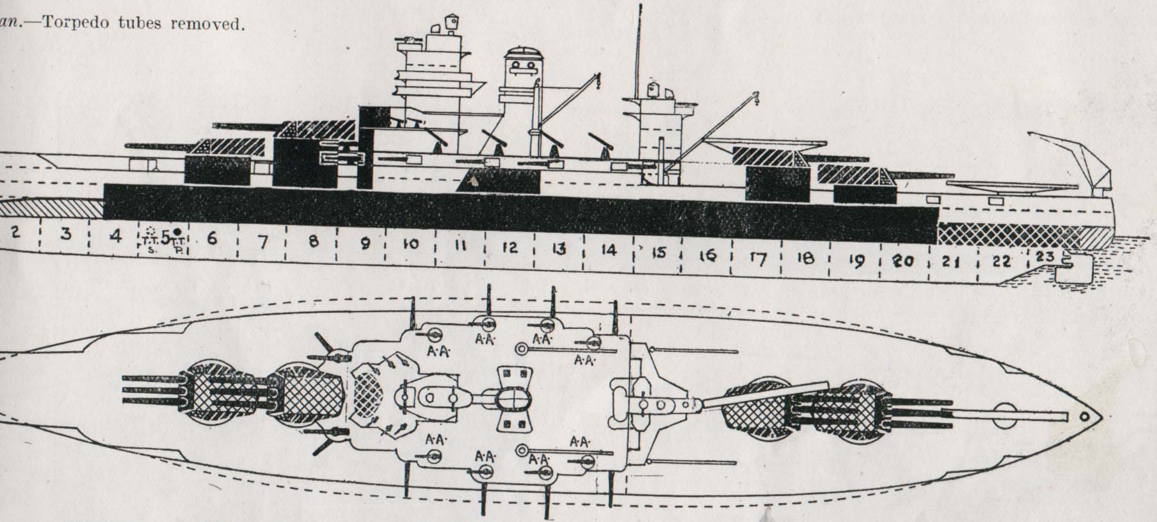
(Reported as 6″ upper and 4″ lower over vital areas)

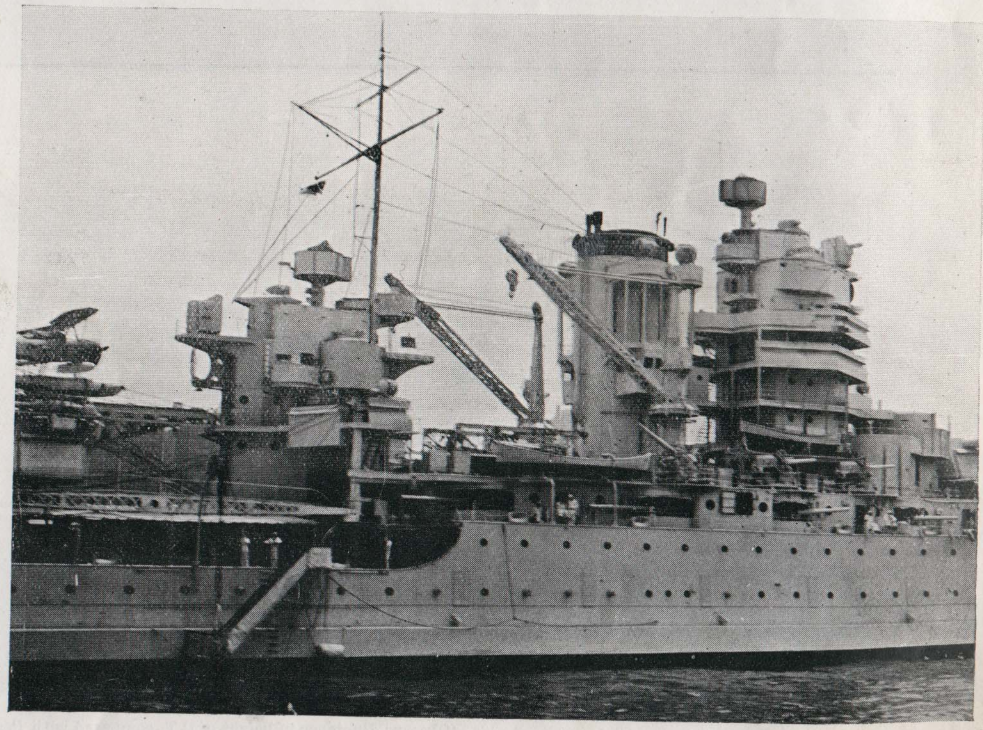


New Mexico.

1934 *Photo, Official.*

Note differences in funnels of these 3 ships.)



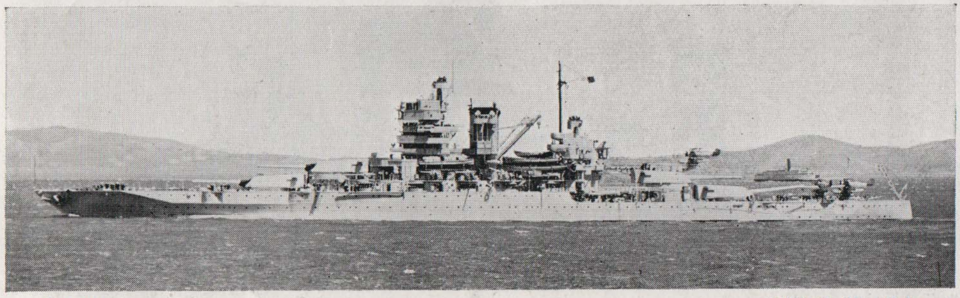


Mississippi.

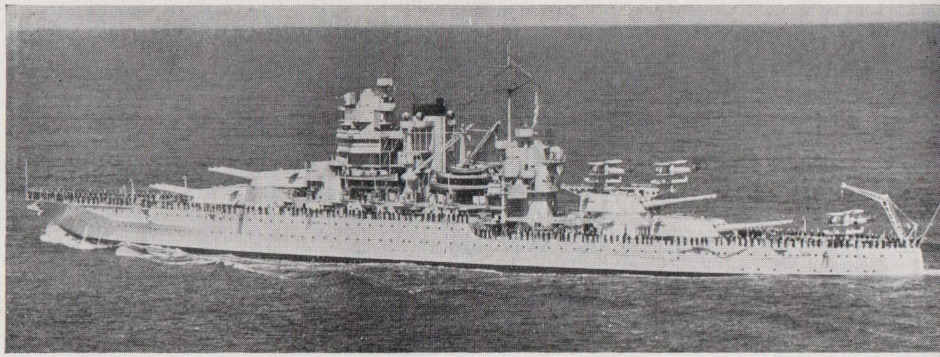
1934 *Photo, Mr. L. Sprague de Camp.*

Machinery : Westinghouse geared Turbines. 4 shafts. Boilers : *Idaho* and *Mississippi*, 6 Bureau Express ; *New Mexico*, 4 White-Forster. Designed H.P. : 40,000 = 21·5 kts. Fuel : Oil only, 2,200 tons (pre-alterations figures). Since modernisation speed has been raised to 22–23 kts.

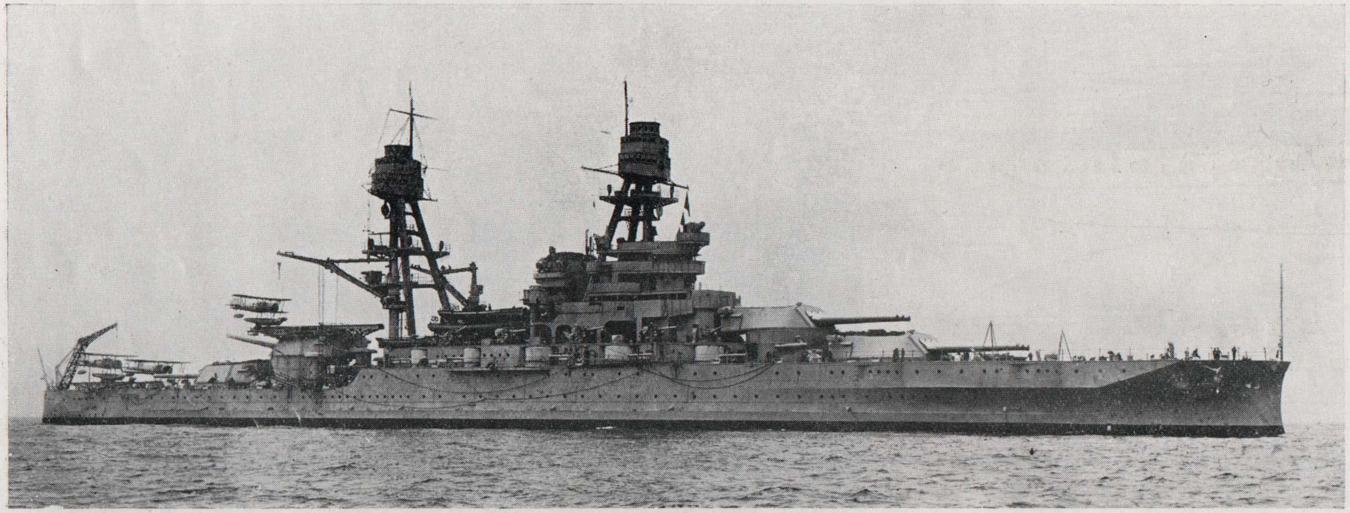
| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* |
|---|---|---|---|---|
| *Idaho* | N.Y.S.B. Co. | Builders | 20/1/15 | 24/3/19 |
| *Mississippi* | Newport News Co. | ,, | 5/4/15 | 18/12/17 |
| *New Mexico* | N.Y. Navy Yard | ,, | 14/10/15 | 15/8/18 |



Idaho. 1936, *O. W. Waterman*

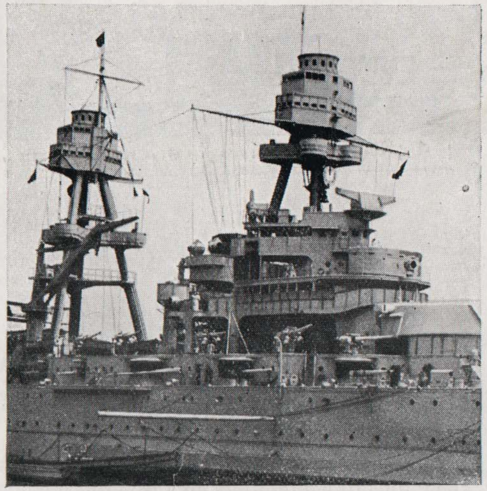


Mississippi. *Added* 1935, *courtesy of U.S. Naval Institute, Annapolis, Md.*



**Arizona.** 1935, *O. W. Waterman.*

(Observe difference in height of C.T. compared with *Pennsylvania.*)



Pennsylvania. 1934 *Photo, Mr. L. Sprague de Camp.*

[illegible] (PENNSYLVANIA CLASS—2 SHIPS).

**YLVANIA** (16th March, 1915) & **ARIZONA** (19th June, 1915). 7 12 41 Пирл Харб

*dard* Displacement, 33,100 and 32,600 tons respectively.

.*l*. 600 feet
.*a*. 608 feet } Beam, 106 feet, 3 in. { *Mean* draught, 28 feet in *Pennsylvania*; 5 ins. less in *Arizona*.
*Maximum* draught, 33½ feet.

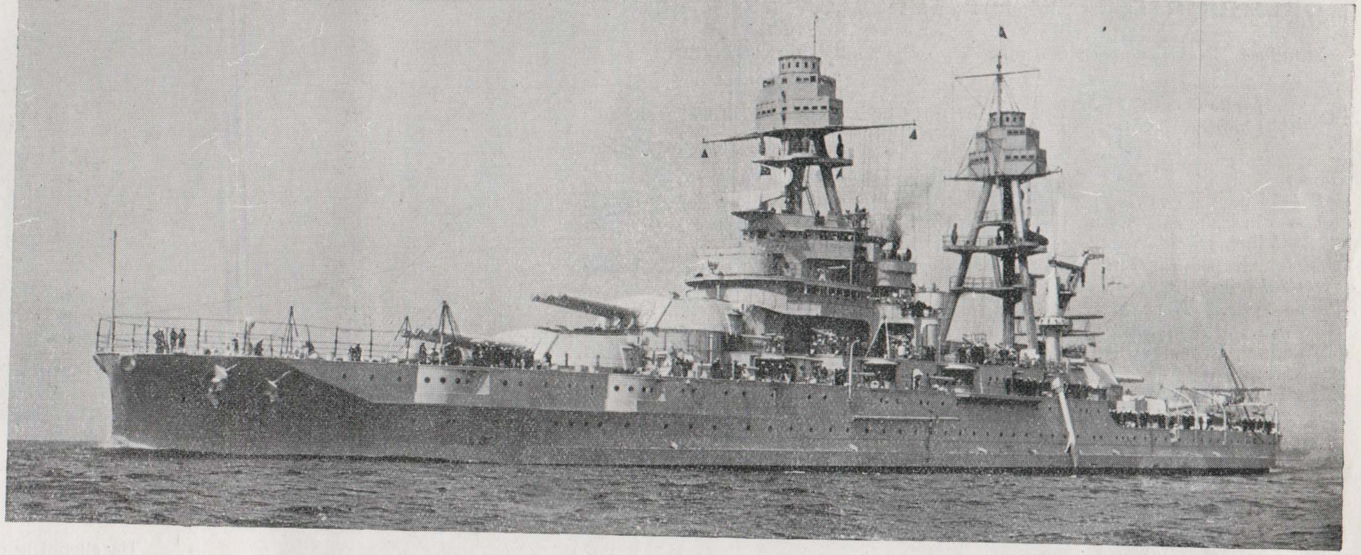
Complement, 1358.

4 inch, 45 cal.
in., 51 cal.
in. (AA.), 25 cal.
pdr. (saluting).
do tubes removed).

: 3

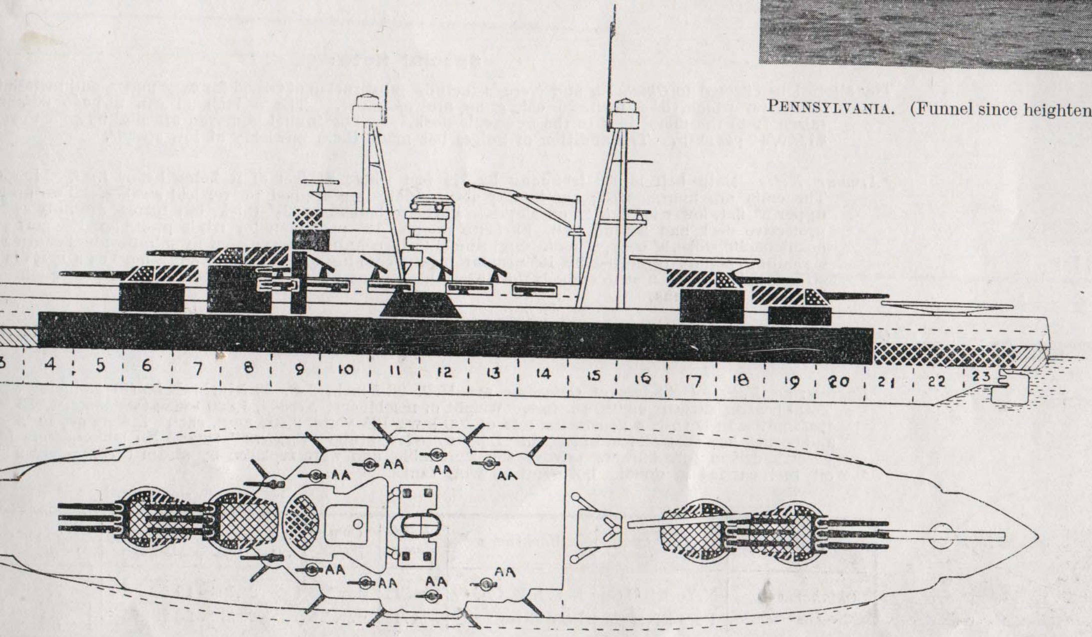
ts:
"X" Turret
quarter deck.

Armour:
14″ Belt (amidships) ........ ■
8″ Belt (aft) ................ ▩
3″ Deck (ends) .............. ▧
15″—9″ Funnel base .. ..... ■
18″—9″ Turrets ■ ⁘ ▨
16″ Conning tower & tube ... ■
(Total, 8072 tons.)
6″ deck amidships (4″ upper, 2″ lower).



PENNSYLVANIA. (Funnel since heightened.)

1933 *O. W. Waterman.*



Machinery: *Pennsylvania*, Curtis turbines, L.P. ahead and astern, H.P. astern. *Arizona*, rsons turbines, L.P. ahead and astern, H.P. astern. In both ships: Westinghouse geared turbines, P. ahead and cruising. 4 shafts. Boilers: *Arizona*, 6 Bureau Express. *Pennsylvania*, 1 Bureau press, 5 White-Forster. Designed H.P. 32,000 = 21 kts. (unaffected by modernisation). el: Oil only, *normal* 2,322 tons (694,830 gallons).

*Armour Notes.*—Generally as for *Nevada* class. Increase of armour weight due to increased internal protection against submarine explosions and greater length of belt. Armour for each triple barbette, 226½ tons. *Arizona* has cement backing to belt, instead of teak, and armoured fire-control tops.

*Gunnery and Fire Control Notes.*—14 inch guns mounted in single sleeve, and can be fired as one piece. *Max.* range at 15° elevation reported to be 21,000 yards. Triple positions weigh about 650 tons each (guns, mountings and armour). Turrets are capable of putting 2—3 salvoes a minute through a target at short range practice. Breech blocks worked by hand power. Interior of the shields to 14 inch guns very roomy and well arranged.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials Full Power: 12 hrs.* | *Tons Fuel per day* 10— | 15— | 19—kts. |
|---|---|---|---|---|---|---|---|---|
| *Pennsylvania* | Newport News | Newport News | Oct.'13 | June,'16 | 29,366 = 21·05 | 65/— | 90/— | —/— |
| *Arizona* | New York Yard | New York Yard | Mar.'14 | Oct. '16 | 33,376 = 21 | 76/— | 167/174 | —/309 |

*General Notes.*—*Pennsylvania* authorised 1912, as *No. 38*, *Arizona* 1913, as *No. 39*. Both ships are enlarged and improved *Nevadas*. They have proved excellent sea boats, very steady gun platforms, and have proved to be very economical ships. Their general design is marked by great simplicity and a very high standard of excellence. Living quarters are very roomy and well ventilated.

These ships have undergone extensive reconstruction which has cost $14,800,000. Battery raised a deck and AA. armament increased; tripods fitted, funnel moved further aft; bulges and increased internal protection; additional bridges, and catapults fitted.

In appearance differ from *Nevada* and *Oklahoma* in having higher conning tower and bridge which reaches funnel level.

(NEVADA CLASS—2 SHIPS).

✝ 7.12.41 [illegible] [illegible]

**OKLAHOMA** (March 23rd, 1914) & **NEVADA** (July 11th, 1914).

*Standard* Displacement 29,000 tons. Complement, both 1301.

Length { *waterline*, 575 feet. / *over all*, 583 feet. } Beam, 107 ft. 11 in. *Mean* draught 27½ feet.

*Maximum* draught 32½ feet.

Guns:
- **10**—14 inch, 45 cal.
- **12**—5 inch, 51 cal.
- 8—5 inch, 25 cal. AA.
- 4—3 pdr. (saluting) in *Oklahoma*.
- 4—6 pdr. in *Nevada*.
- 8—M.G.

(Torpedo tubes removed.)

Aircraft: 3.

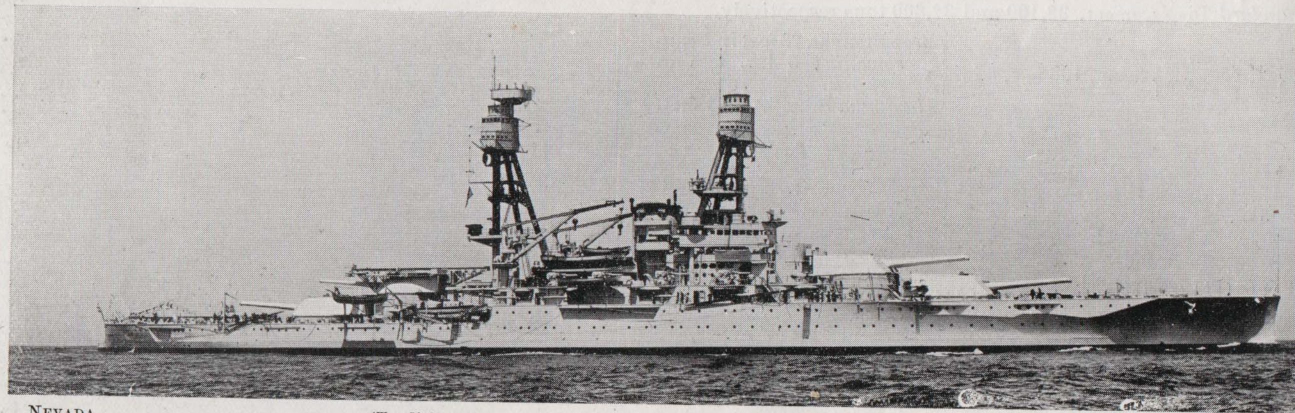
Catapults:
- 1 on "X" Turret.
- 1 on quarter deck.

Armour:
- 13½" Belt (amidships) .............. ■
- 8" Belt (aft) .............................. ▩
- 13½" Bulkheads ..........................
- 13½" Funnel base ...................... ■
- 3" Deck (ends) ........................... ▨
- 18"—9" Triple turrets .. } ▦ ⁚⁚⁚
- 16"—9" Double turrets .. } ▨
- 16" Conning tower and tube ...... ■
- (Total weight, 7664 tons.)

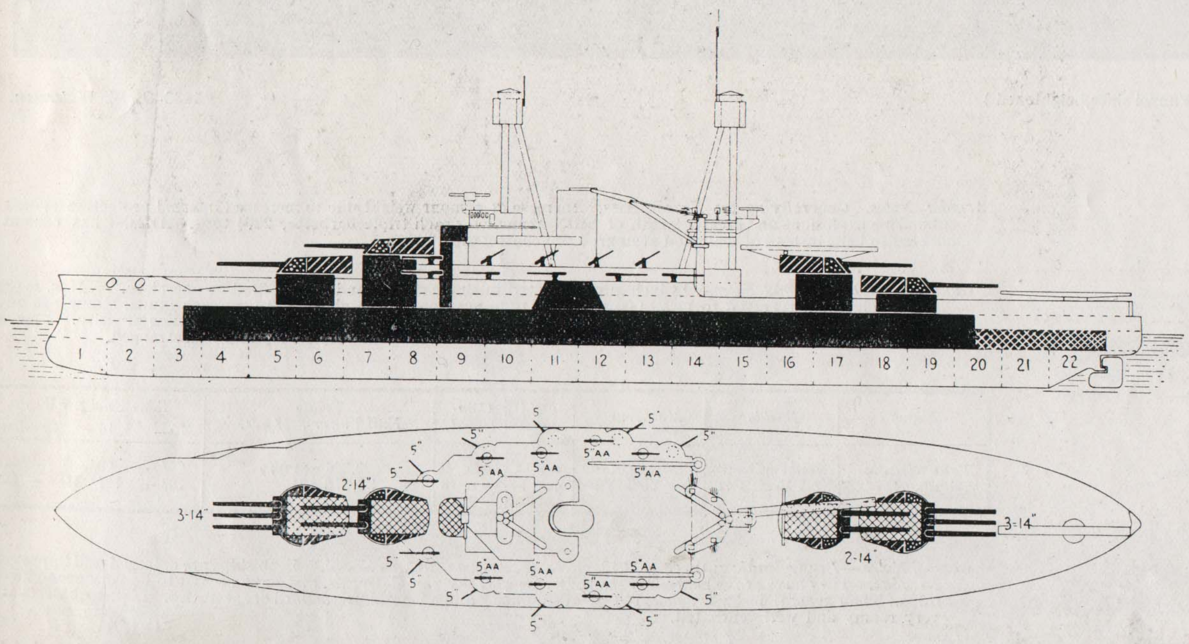
5" Deck (amidships). (3" upper and 2" lower).

(Bulges fitted).

*Note to Plan.*—Now has S.L. Platforms abeam of funnel.



NEVADA. (To distinguish from *Oklahoma*, observe mainmasthead.) 1935, *O. W. Waterman*.



Machinery: *Oklahoma*, Triple expansion, 4 cylinder; *Nevada*, Parsons turbines with reduction gear. Both: 2 shafts. Boilers: 6 Bureau Express. Designed H.P.: 25,000 = 20·5 kts. Fuel: Oil, 598,400 gallons (2,000 tons), *maximum capacity*. Radius of action: 4,000 miles at full speed, 10,000 miles at 10 kts.

## Special Note:

The alterations effected to *Oklahoma* and *Nevada* include substitution of tripod for cage masts, and installation o house, on which, **8**—5 inch, 25 cal. guns are mounted. The 5 inch 51 cal. torpedo defence ba raised from the main deck to the forecastle deck. The funnel is moved aft slightly. Cost of alt $7,000,000 per ship. **The addition of bulges has made them unwieldy at low speeds.**

**Armour Notes.*—Main belt is 400 feet long by 17½ feet wide; 8½ feet of it being below *l.w.l.* Lower edg The ends are unarmoured; the battery also. Plates are applied in vertical strakes. Two protective upper 3" flat, lower 1½" flat, 2" on slopes. Barbette bases are 13½" thick, but turrets are only 4½" where protective deck and behind belt. Barbette shields: 18" port plate for triple positions. 16" port plate f positions, 10" sides, 9" back, 5" roof. Sighting slits in conning tower closed by splinter-proof shutters. Th signalling station protected by 16" armour behind conning tower. These ships marked a new era in nav struction, being the first to embody the "everything or nothing" idea in the matter of protection. No bu between 14 inch guns.

*Gunnery Notes.*—Guns in the triple turrets in one sleeve, can be fired as one piece. Elevation has been increased t

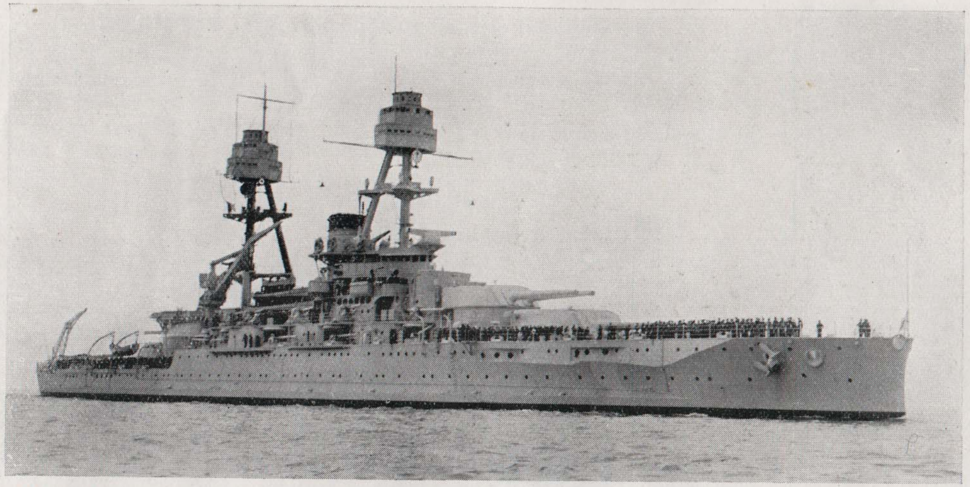
*Engineering Notes.*—Cylinders of *Oklahoma* are H.P. 36·5 inch, I.P. 59·5 inch, L.P. (2) 78 inch. Stroke, Total heating surface, 45,080 sq. feet. Weight of machinery, *Nevada*, 1,860 tons; *Oklahoma*, 1,933 tons. installation in both is 4 generating sets of 300 k.w., 125 volts, 2,400 amp. each Boilers are in 6 compar and occupy less than 80 feet of length. Boilers are large tube "Express" type. No superheaters in eithe Electric-driven f.d. blowers proved too unreliable, and were replaced by steam turbine-driven blower oil fuel carried in double bottom; no wing tanks.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials:* (*Full Power—12 hrs.*) | *Tons fuel per 10 kts.* | *Tons fuel per 15 kts.* |
|---|---|---|---|---|---|---|---|
| *Oklahoma* | N.York S.B.Co | N.Y. S.B. Co. | Oct. '12 | May, '16 | 21,703 = 19·68 | 77 | 143 |
| *Nevada* | Fore River Co. | Fore River | Nov. '12 | Mar. '16 | 23,312 = 20 28 | 50·5†<br>77§ | 132·5†<br>149§ |

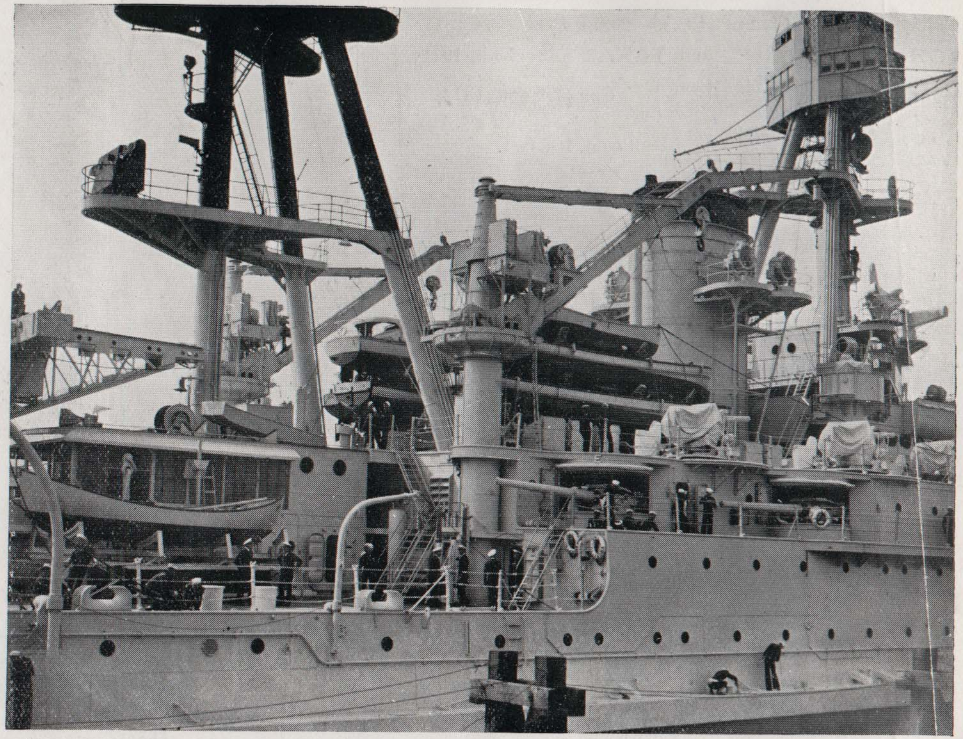
†Cruising turbines. §Main turbines.

*General Notes.*—Authorised 1911 as *No. 36* (*Nevada*), *37* (*Oklahoma*).

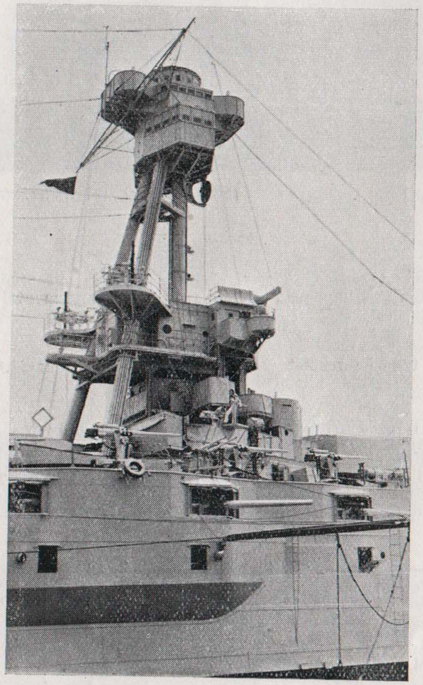
*Unofficial Notes.



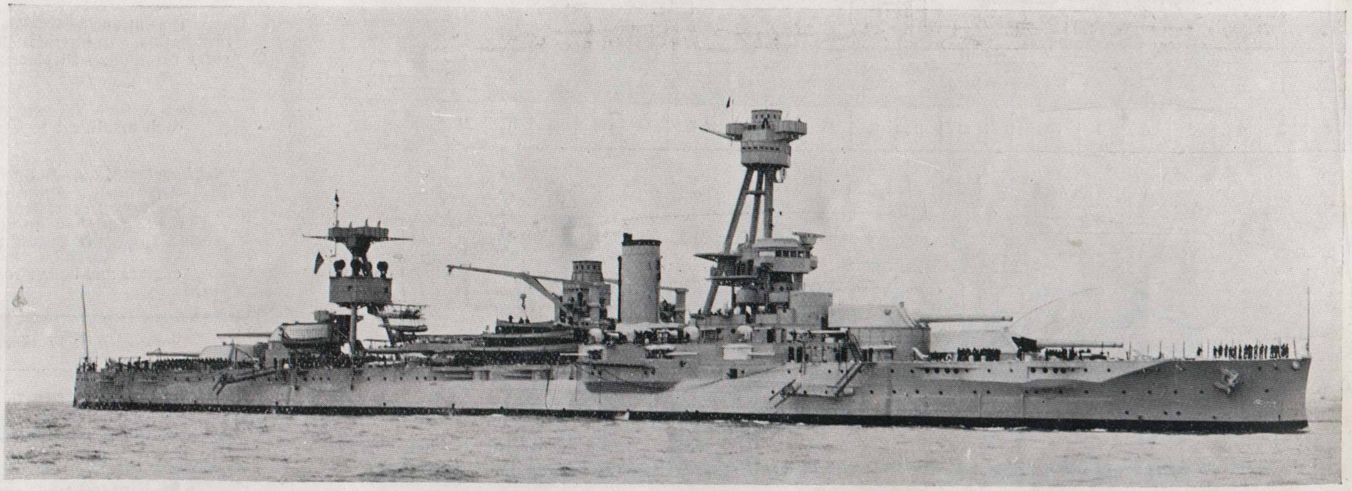
OKLAHOMA. 1936, *Wright & Logan.*



OKLAHOMA. 1936, *Wright & Logan.*



NEW YCRK.
1934 *Photo, Mr. L. Sprague de Camp.*



NEW YORK. 1936 *Photo, O. W. Waterman.*

[illegible] (TEXAS CLASS—2 SHIPS.)

**NEW YORK** (Oct. 30th, 1912) and **TEXAS** (May 18th, 1912).

Displacement, { *Standard*, 27,000 tons. / *Full load*, 30,000 tons. } Complement, 1314.

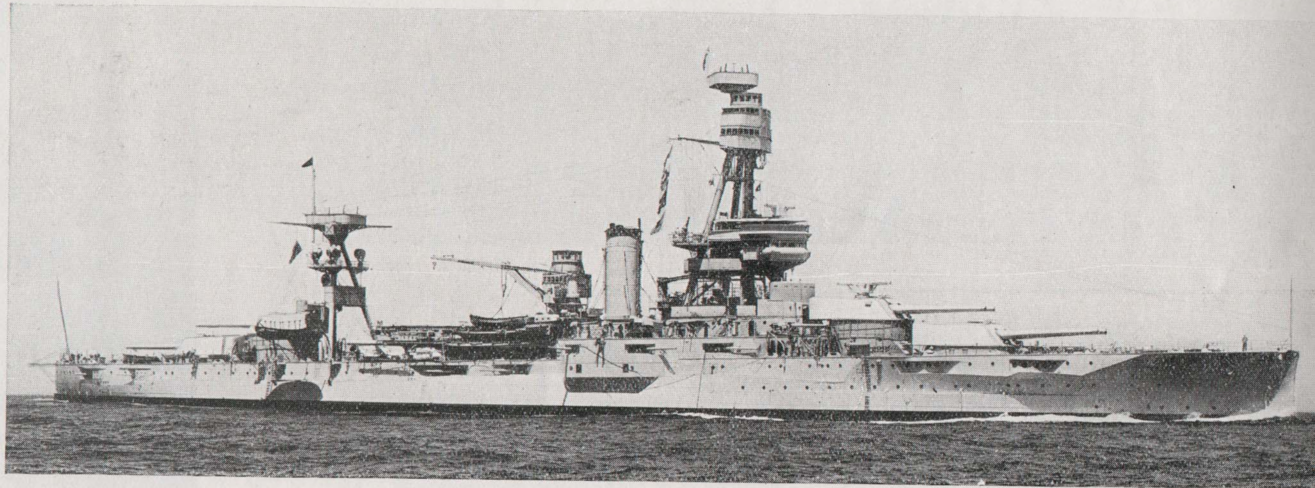
Length (*waterline*), { 566 feet. / Length (*over all*), 573 feet. } Beam, 106 feet.

*Mean* draught, 26ft.
*Max.* ,, $31\frac{1}{2}$ ft.

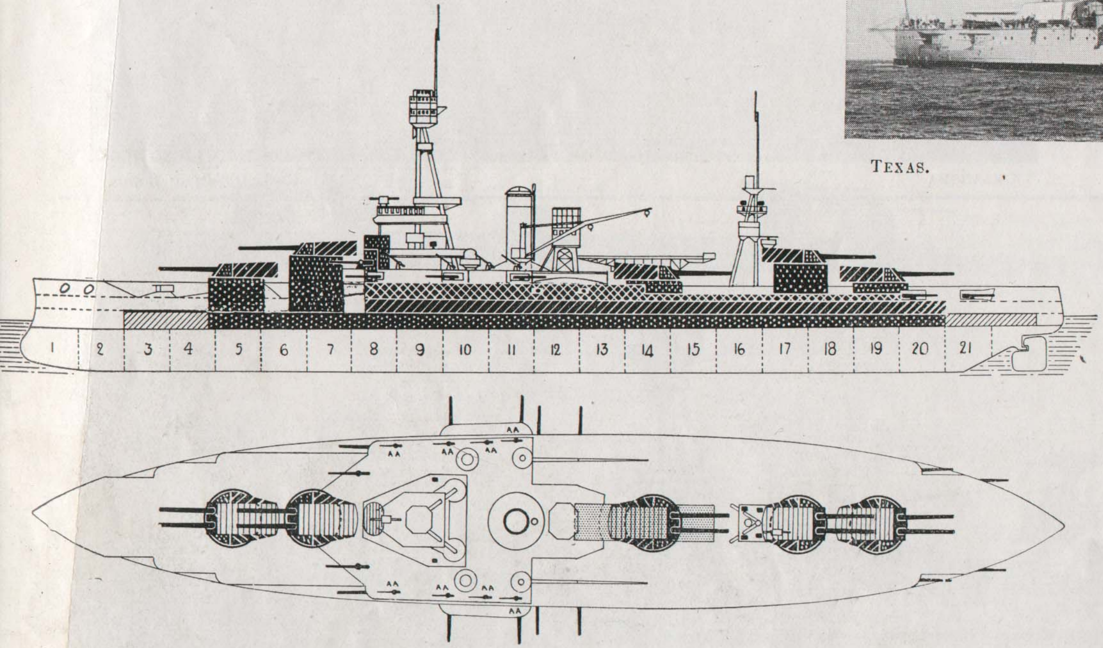
Guns:
**10**—14 inch, 45 cal.
**16**—5 inch, 51 cal.
8—3 inch AA., Mk. III.
4—3 pdr. (saluting).
2—1 pdr.
8 M.G.
2 landing.
(Torpedo tubes removed).

Catapults:
1 on turret amidships.

Armour (Midvale):
12″ Belt (amidships)...... ■
″ Belt (ends) ........... ▨
3″ Deck (being increased)
9″—6″ Upper Belt ▨ ▩
14″—8″ Turrets... ■ ▨
12″ Barbettes.............. ●
6″ Battery ............. ▩
12″ C.T. .................. ■
(Bulges fitted 1926-27).



TEXAS. (To distinguish from *New York*, note forward control top.) 1935 *Photo, O. W. Waterman.*



Machinery: Vertical triple expansion, 4 cylinder. 2 shafts. Boilers: 6 Bureau Express. Designed H.P. 28,100 = 21 kts. Oil: 5200 tons. Present speed 19 kts.

The alterations effected in the Battleships of the *Arkansas*, *Texas* classes, include oil burn installation, anti-aircraft defence, increased underwater protection and improved aircraft handling arrangements. carry catapults. Displacement increased by nearly 3,000 tons.

*Gunnery Notes.*—New fire control system installed 1926 with tripod foremast. *New York* now has four M.G. each masthead top.

*Engineering Notes.*—Builders of turbine engines in the U.S. refused to adopt the standards laid down by the N Department. Accordingly, in these ships, reciprocating engines were reverted to, to show the turbine builders t the Navy Department was determined to have turbines built to official specification, or else the older type of engi would be taken up again. Cylinders: H.P. 39″, I.P. 63″, L.P. (2) 83″. Stroke: 48″. Weight of machinery: *Te* 1971 tons: *N.Y.* 2048 tons, both exclusive of electric lighting equipment. Electrical installation: 4 sets each 300 k.w., 125 volts 2400 amps., by General Electric Co. Both ships converted to oil burning, and will have m engines and boilers renewed.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials: Full Power.* | *Boilers* | *Best recent speed* |
|---|---|---|---|---|---|---|---|
| *Texas* | Newport News | Newport News | Apl., '11 | Mar., '14 | 19·77 | Bureau Express | ... |
| *New York* | New York Yard | New York Yard | Sept., '11 | Apl., '14 | 20·23 | | |

*General Notes.*—Authorised 1910 as *No. 34 (N.Y.)* and *35 (Texas)*. Both ships fitted as flagships. They are slow si refit, hard to handle and bad sea boats in rough weather—wet and rolling so that waves ride the bulges into t amidships casemate.

(ARKANSAS CLASS)

опыт с авиац

## ARKANSAS (N.Y. Shipbuilding Co. Jan. 14th, 1911).

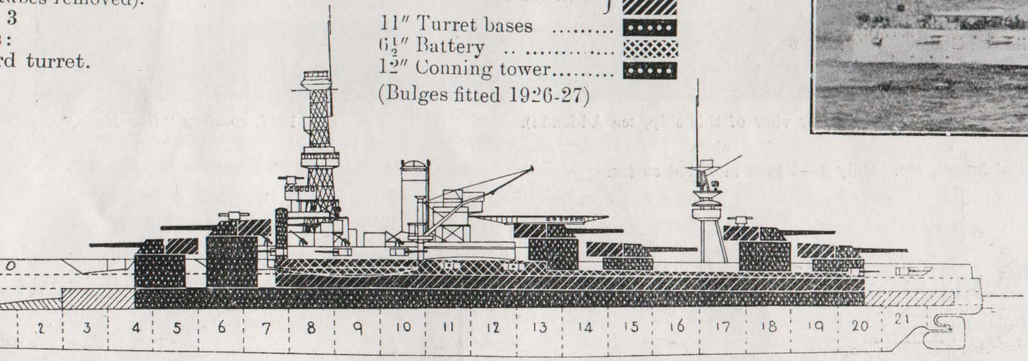
Displacement, { *Standard,* 26,100 tons. / *Full load,* 29,000 tons. } Complement, 1330.

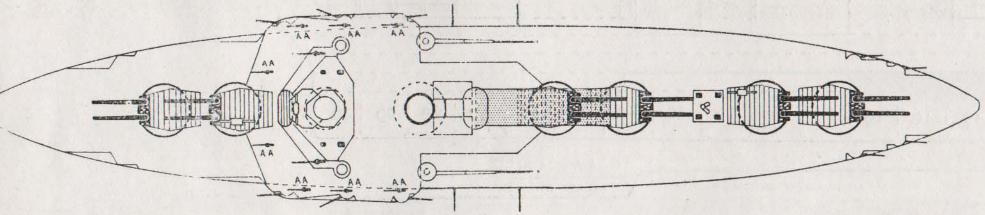
gth { (*w.l.*), 555½ feet. / (*o.a*), 562 feet } Beam, 106 feet.

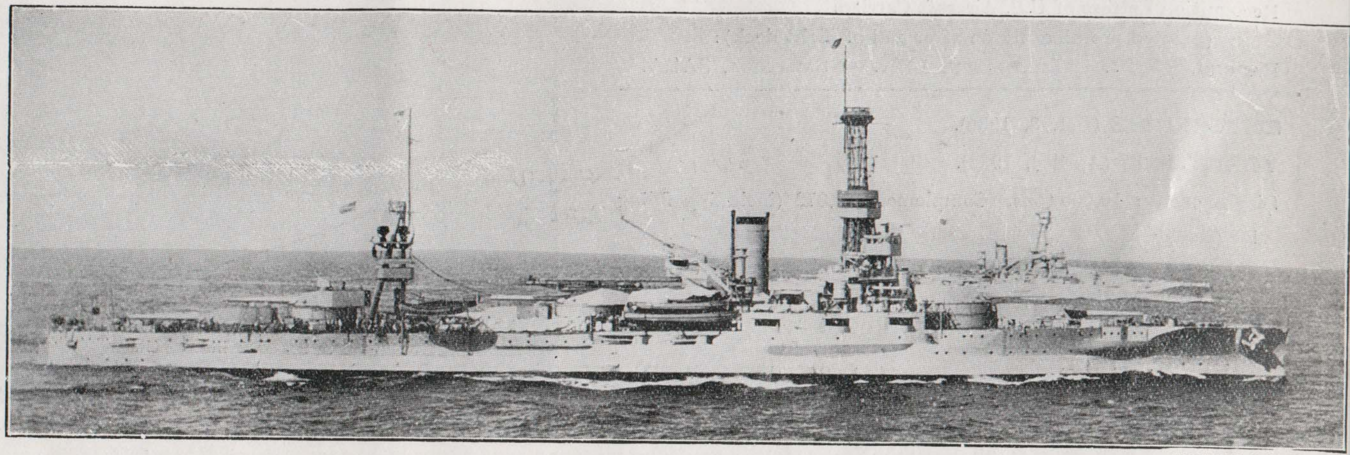
*Mean* draught, 26 feet.
*Max.* „ 32 „

inch, 50 cal.
nch, 51 cal.
nch AA., Mk III.
dr. (saluting).
tubes removed).
3
:
rd turret.

Armour (Midvale):
11″—9″ Belt amidships ▪ ▨
5″ Belt (ends) .......... ▨
12″—9″ Turrets ........ ▪ ▨
11″ Turret bases ........ ▪
6½″ Battery .. ............ ▩
12″ Conning tower........ ▪
(Bulges fitted 1926-27)



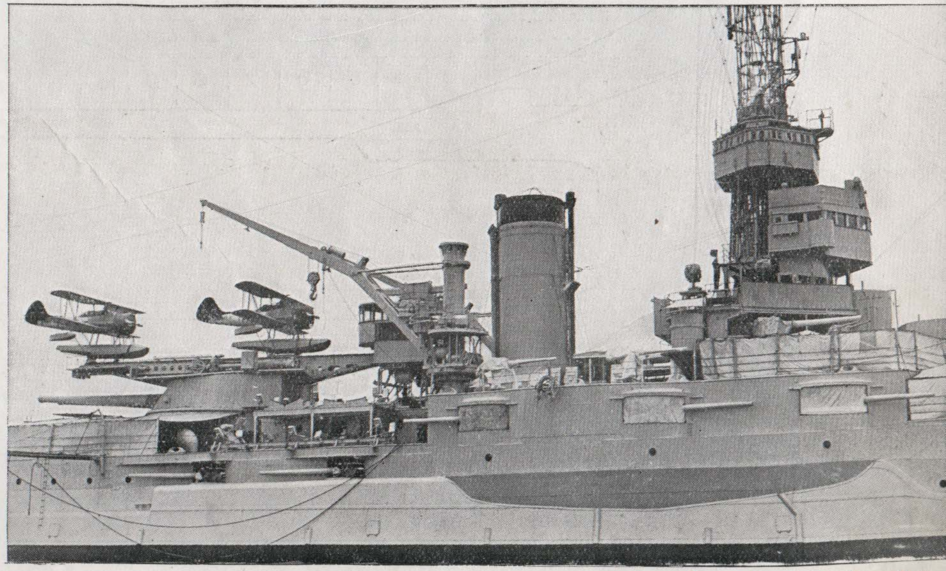



1927 *Official Photo.*

Machinery: Parsons turbines. 4 shafts. Boilers: 4 White-Forster. Designed H.P. 8,000 = 20·5 kts. Oil: 5,100 tons. Present speed 19·2 kts.

*eneral Note.*—Laid down Jan. 1910 and completed Sept. 1912. Underwent extensive alterations and refit 1925-27 when displacement was increased by 3,000 tons.

A sister ship **WYOMING** has been de-militarised according to the terms of the Naval aty. Nos. 3, 4, 5 turrets removed. She is employed as a Training Ship (vide a later page).


1934 *Photo, R. Perkins, Esq.*

Recognition Letters of U.S. Aircraft Carriers
(painted prominently on after end of flight deck):
Ranger, RNGR. Lexington, LEX. Saratoga, SARA.

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**ENTERPRISE** (Oct. 3, 1936).

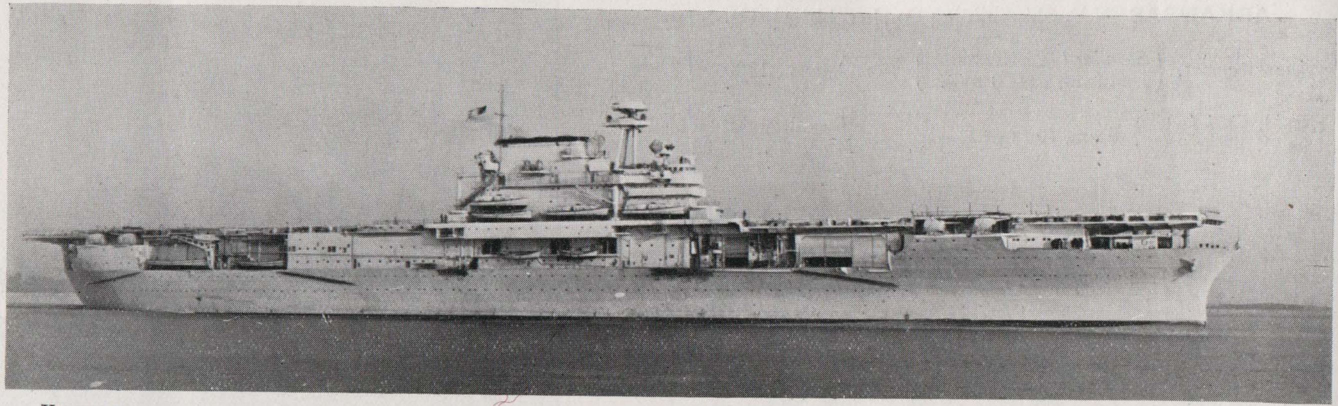
† **YORKTOWN** (April 4, 1936). у Мидуэй 7.6.42

Displacement: 19,900 tons. Complement, 2,072 (including flying personnel).

Length: 761 feet (*w.l.*), 809½ feet (*o.a.*). Beam, 83¼ feet. Draught, 21⅔ feet (*mean*).

Guns:
**12**—5 inch AA.

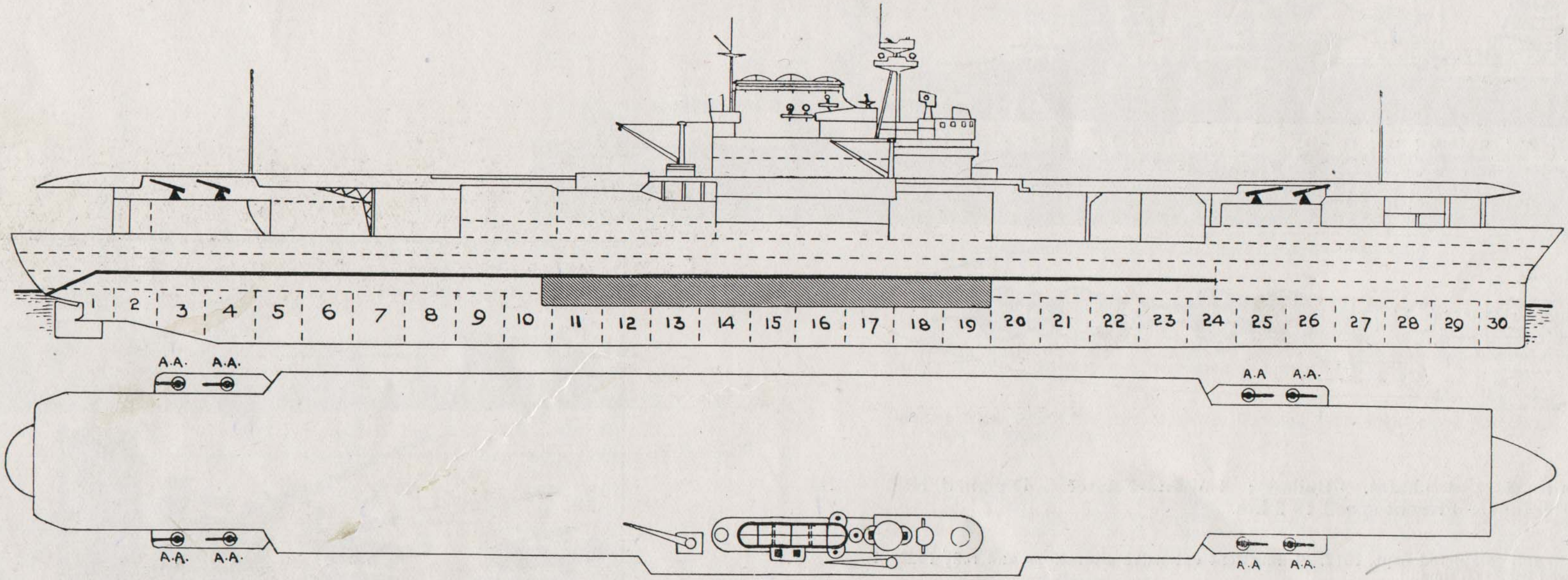
Aircraft:
Over 100.



Yorktown. (For another view of this ship, see Addenda). 1937, *courtesy "Our Navy."*

*Note to Plan.*—This shows starboard beam to illustrate details of funnel, etc. Only **8**—5 inch mounted so far.

е
а...
800
6.10.42
1000
...ан. Лейте 24.10.44



Machinery: Geared turbines. S.H.P.: 120,000 = 34 kts. Boilers: 9 Babcock & Wilcox Express type.

| *Name* | *Builder* | *Laid down* | *Completed* |
|---|---|---|---|
| *Enterprise*<br>*Yorktown* | Newport News Co. | 16 July, 1934<br>21 May, 1934 | *To be* 1938 |

*Notes.*—Owing to serious mechanical defects, involving replacement of the reduction gearing and over 1,200 boiler tubes, completion of *Yorktown* is likely to be postponed until summer of 1938. It is feared that *Enterprise* may be similarly delayed.

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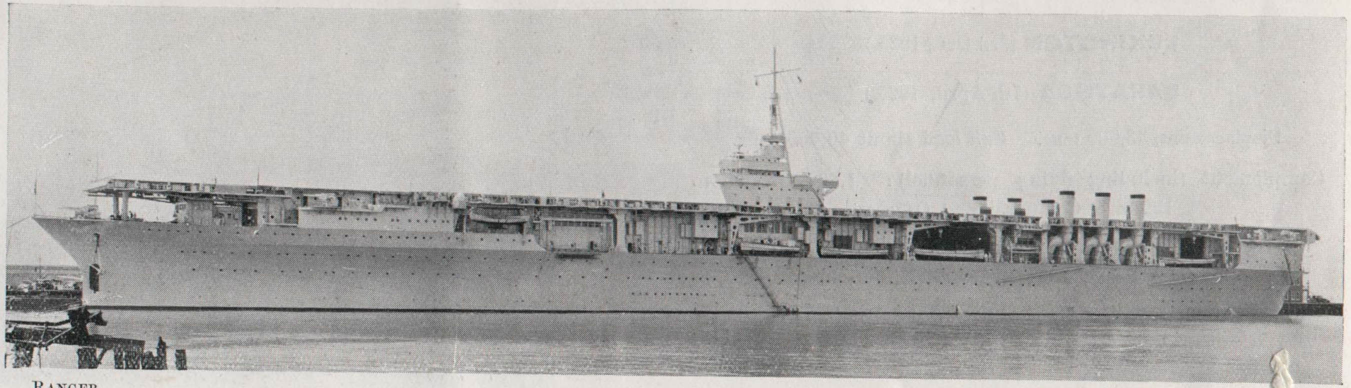
Ав ТОФ
Princeton (Корея)
Coral Sea
Antietam
Kearsarge
Boxer (Корея)
Oriscany

Атл
F.D. Rousevelt
Midway
Leyte
Philippine Sc

Ав Сицилия

in Solomons 15.9.42

**WASP** (CV.7.). (Bethlehem S.B. Corporation, Quincy). Laid down April 1, 1936, under 1935–36 Programme for completion in 1938. Displacement: 14,700 tons. Dimensions: 688 (*w.l.*) × 80$\frac{1}{5}$ × 20 feet (*mean*) draught). Machinery: Parsons I.R. turbines. Boilers: Yarrow (by Bethlehem Co.). To cost £4,000,000. Will replace *Langley*, now relegated to training duties.

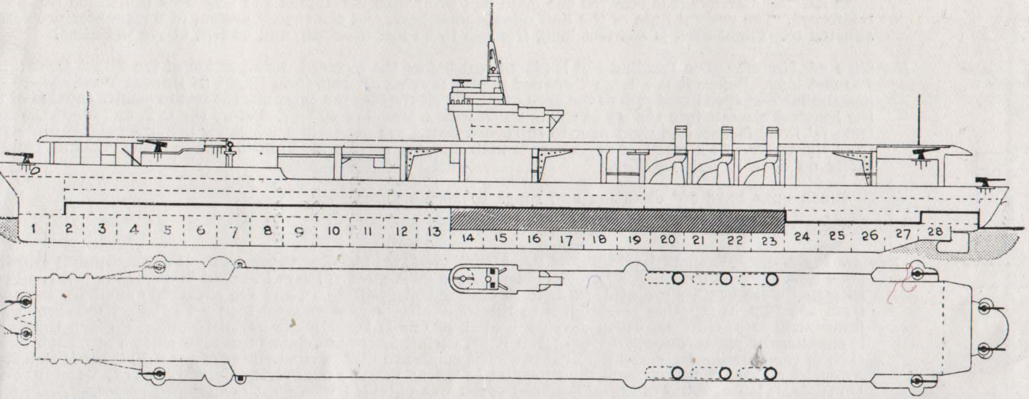


RANGER.

*Added* 1935, *courtesy U.S. Naval Institute.*

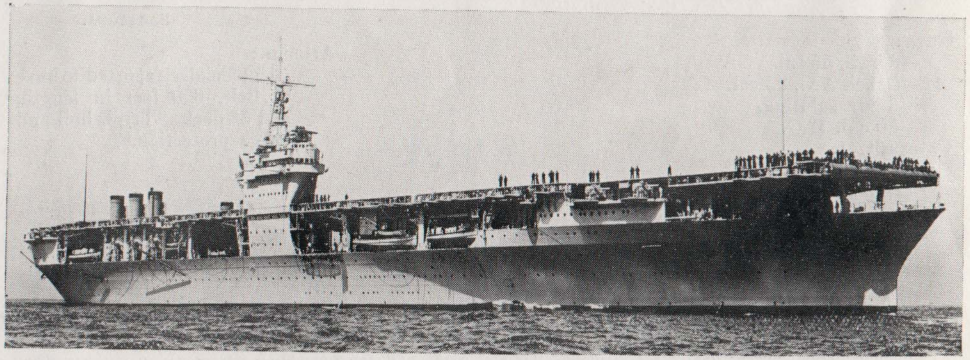
**RANGER** (Newport News S.B. Co., Feb. 25, 1933). Displacement: 14,500 tons. Complement (including flying personnel): 1,788, of whom 162 are commissioned officers. Dimensions: 728 (*w.l.*), 769 (*o.a.*) × 80$\frac{1}{12}$ × 19$\frac{2}{3}$ ft. (*mean*). Guns: 8—5 inch AA. Carries 75 Aircraft, of which 4 squadrons are bomber fighters, the remainder amphibians.

*Note to Plan.*—Guns shown on forecastle and q.d. now mounted on superstructure over sections 6 and 26—27, as shown in 1936—37 photos.

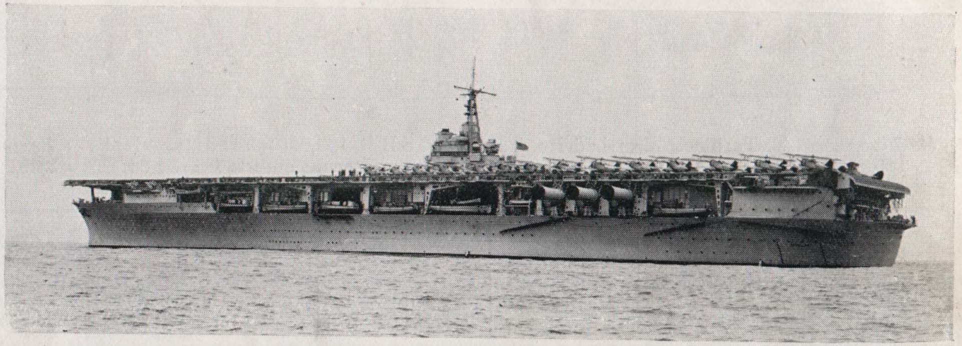


Machinery: Geared Turbines (high pressure Curtis; low pressure Parsons). 2 shafts S.H.P.: 53,500 = 29$\frac{1}{4}$ kts. Boilers: 6 Babcock & Wilcox sectional Express.

*General Notes.*—Laid down Sept. 26, 1931. Completed June 4, 1934. Trials: 58,700 = 30·35 kts. (*max.*). Funnels can be lowered to horizontal position as in *Langley*.



*Added* 1937, *O. W. Waterman.*



1936, *O. W. Waterman.*

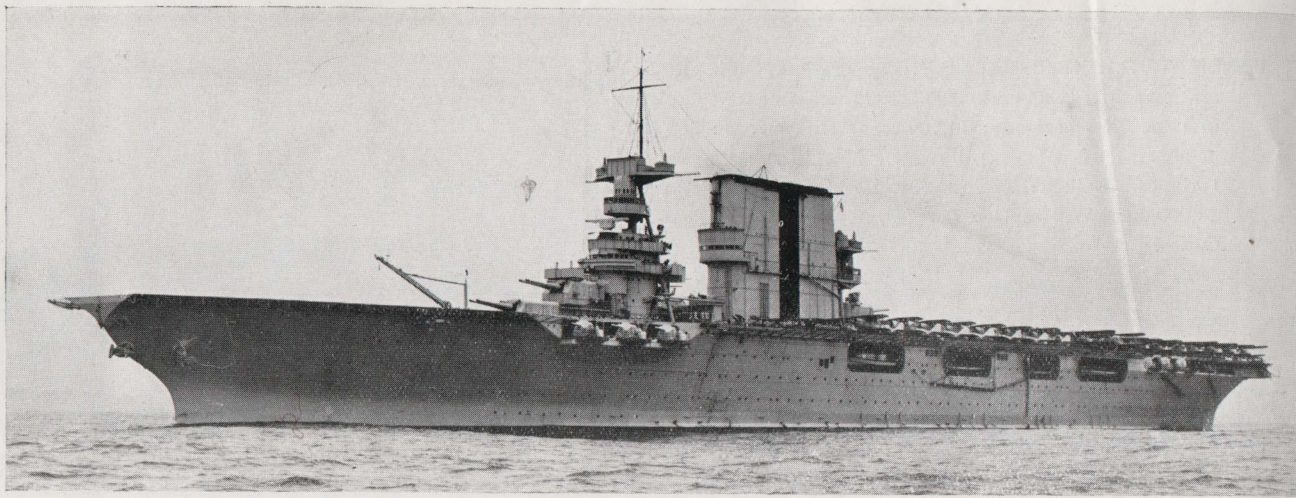
## + **LEXINGTON** (3rd Oct., 1925.) в коралл 8.5.42

## **SARATOGA** (7th April, 1925.) [illegible]

Displacement, 33,000 tons. *Full load* about 40,000 tons.

Complement (including flying personnel): 1,899, of whom 169 are Commissioned Officers.

Length (*w.l.*) 830; (*pp.*), 850 ft.; (*o.a.*) 888 ft.
Beam, 105½ ft. (*extreme*).
Draught, 24 feet 2 inches (*mean*). 32 feet (*max.*)



SARATOGA.

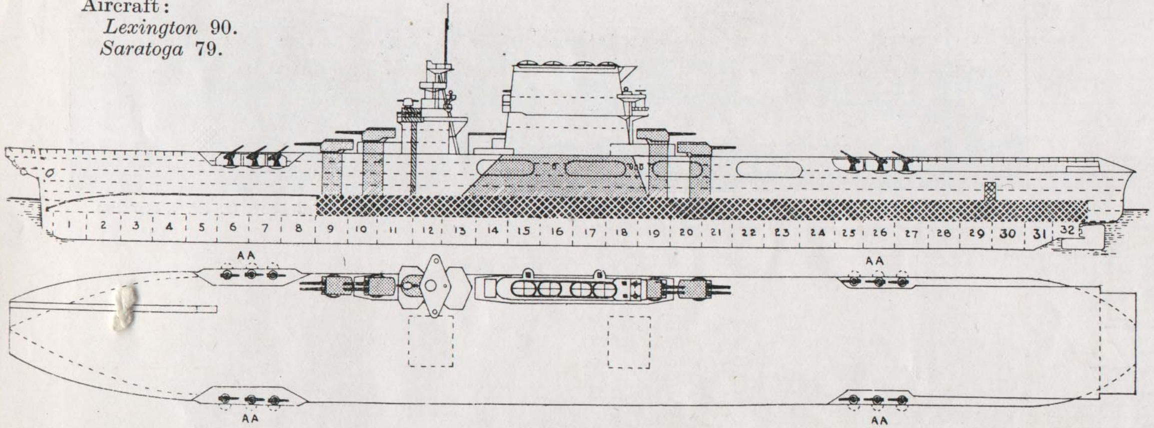
1936, *O. W. Water*

Guns:
- 8—8 inch, 55 cal.
- 12—5 inch AA., 25 cal.
- 4—6 pdr. saluting.
- 8—50 cal. M.G.

Catapult, 1.

Aircraft:
- *Lexington* 90.
- *Saratoga* 79.

Armour:
Unofficially reported to have 6″ Belt, 600 feet in length, and 3″ deck. Triple hull and bulge protection.



*Machinery*: G.E. Turbines, electric drive. Designed S.H.P. 180,000 = 33·25 kts. Boilers: *Lexington*, 16 Yarrow; *Saratoga*, 16 White-Forster. 4 shafts. Recent speeds *L.* = 34·24. *S.* = 33·91 kts. Oil fuel, 7,000 tons.

| *Name* | *Builder* | *Machinery* | *Laid down* | *Completed* | *Trials* | *Boilers* |
|---|---|---|---|---|---|---|
| *Lexington* | Fore River S.B. Co. | Gen. Elec. Co. | 8/1/21 | Dec.'27 | 153,600 = 33·04 | Yarrow |
| *Saratoga* | New York S.B. Co. |  | 25/9/20 | Nov.'27 | 158,375 = 33·42 | White-Forster |

*Special Note.*—It is proposed to reconstruct these 2 ships at a cost of $14,000,000 for the two. They will be moder as regards AA. and gas defence, damage control and aircraft operation. Flight deck to be widened at the bo 60 ft. A bulge to be built along port side, nearly the full length of the ship and adding 2½ feet to the bea balance the weight of the island superstructure. This will make it possible to utilise the full quantity of oi carried, instead of retaining some as ballast. This will increase deadweight by 450/500 tons, but decrease disp ment by about 2,000 tons, as ship will stand higher out of water.

*General Notes.*—These two ships were originally authorised in 1916 for construction as Battle Cruisers of 35,300 with *seven* funnels and boilers disposed on two deck levels. After the War, plans were to a large extent re v. F.S. 1919–1921 Editions.

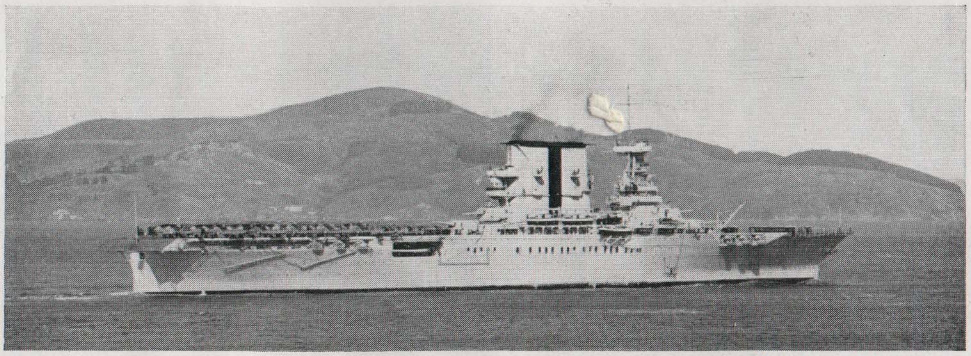
As Aircraft Carriers it is believed the main belt protection is retained and that deck protection has been he reinforced. The general lines of the hull remain unaltered, and the special system of underwater protection i adhered to. Flight deck is 880 feet long, from 85 to 90 feet in width, and 60 feet above waterline.

*Handling of Aircraft.*—The Landing Net is placed just before the recessed stern portion of the Flight Deck; it is 100 feet long. Before it is a large T-shaped lift for moving aircraft from Flight to Hangar Deck. There is an and similar T-shaped lift abeam of the mast and C.T. At the bow is a catapult, 155 feet in length, capable of laun the heaviest aircraft into the air at flying speed with a travel of 60 feet. Before the C.T. and abaft the Navig Officers' Deck House, and right over to starboard beam, are powerful derricks for lifting seaplanes and flying from the water. As a result of experiments with *Langley*, certain modifications were made enabling planes to safely on deck in any weather.

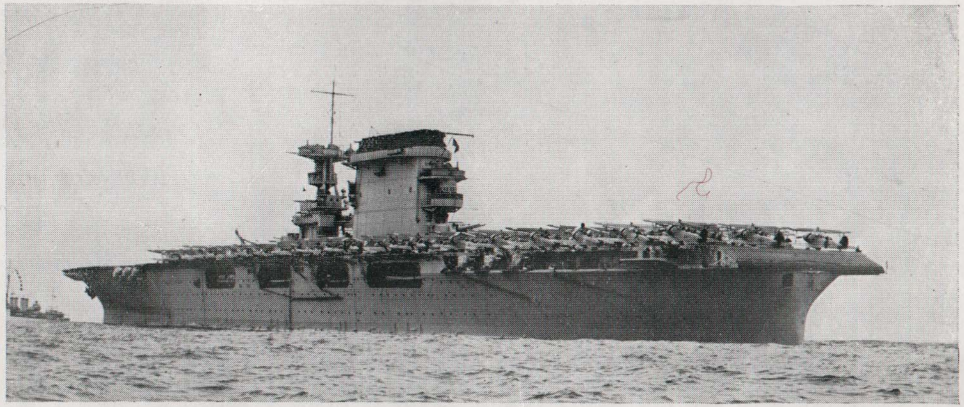
8-inch guns have 30° elevation and range to 28,000 yards.

Total cost of these ships, with aircraft, was over $45,000,000 each.

*Engineering Notes.*—Each boiler 11,250 H.P. Steam pressure, 295 lbs. to sq. inch. Fuel consumption estimat 2000 tons daily under full power. Machinery is the most powerful ever installed in a warship; it is all contr so far as main engines are concerned, from one central position. There are over 1000 auxiliary motors, ra from 425 H.P. ventilating plant down to the small electric motors connected with the self-synchronising el fire-control arrangements, which develop 1-200th of one H.P. For general distribution through the ship, cu is supplied by six turbo-generators of 750 K.W. each. There are eight propelling motors of 22,500 H.P. (t each of the four shafts), speed 317 R.P.M. The combined illuminating power of the S.L. is equal to 3,260,00 Altogether, these ships represent the climax of American practice in applying electric power to warship constru On trials, it is stated that 97% of designed speed was obtained with 85% of designed power. *Lexington* di voyage from San Diego to Honolulu (2228 miles), at an average speed of 30·7 kts. A speed of 34·5 kts maintained for one hour by the latter ship with S.H.P. 210,000. Average displacement of both ships on was about 39,000 tons.



Saratoga 1935, *Bear Photo Service.*



Lexington. (Platform added around funnel top) 1936, *O. W. Waterman*

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## Note.

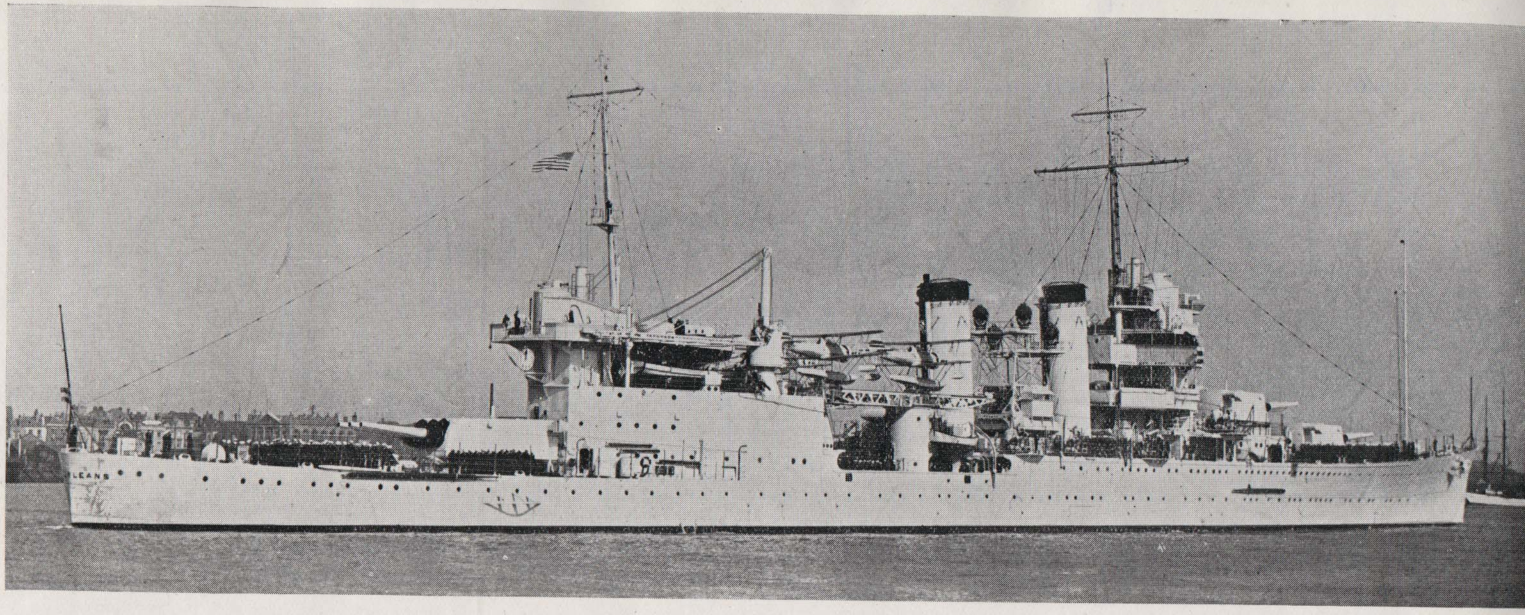
**Ex-Aircraft Carrier LANGLEY has been transferred to a later page on reclassification as Aircraft Tender and relegation to training duties.**

(MINNEAPOLIS CLASS—8 SHIPS)

**ASTORIA** (Dec. 16, 1933). ur 9.8.42
**MINNEAPOLIS** (Sept. 6, 1933).
**NEW ORLEANS** (April 12, 1933).
**TUSCALOOSA** (Nov. 15, 1933).
**SAN FRANCISCO** (March 9, 1933).
**QUINCY** (June 19, 1935). Hagl 9.8.42
**VINCENNES** (May 21, 1936). " 9.8.42
**WICHITA** (Nov. 16, 1937).

Displacement: 9,950 tons, except *Tuscaloosa*, 9,975, and *Quincy*, 9,375 tons. Complement, 551.

Dimensions: 574 (*w.l.*), 588 (*o.a.*) × $61\frac{3}{4}$ × $19\frac{1}{2}$ feet (*mean*), $23\frac{1}{2}$ (*max.*). *Tuscaloosa*: 584 (*w.l.*), 610 (*o.a.*) × 66 × $17\frac{1}{2}$ feet (*mean*).
*Quincy*: 569 (*w.l.*) × $61\frac{3}{4}$ × $18\frac{1}{5}$ feet (*mean*).
*Vincennes*: 575 (*w.l.*) × $61\frac{5}{6}$ × $19\frac{1}{2}$ feet (*mean*).
*Wichita*: 600 (*w.l.*) × $61\frac{3}{4}$ × $19\frac{5}{6}$ feet (*mean*).



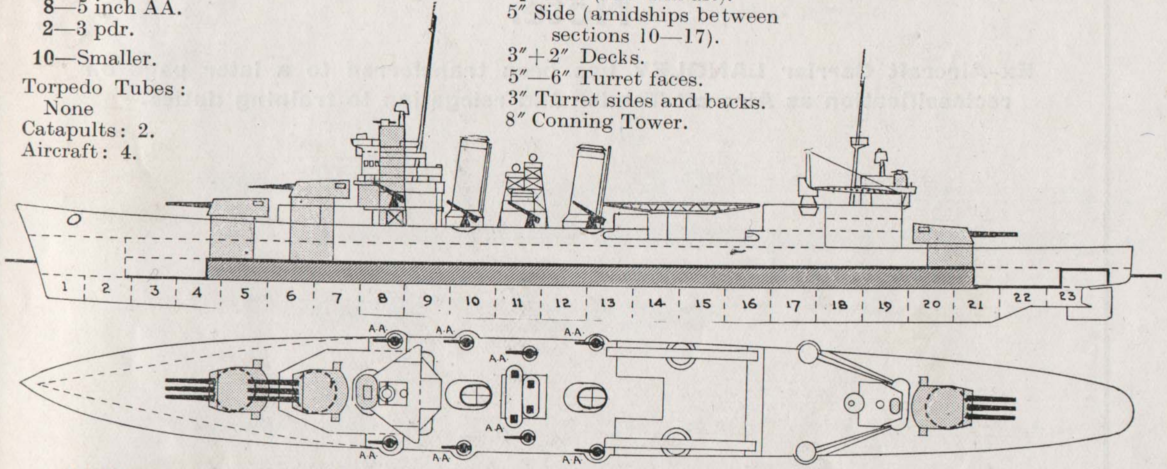
NEW ORLEANS

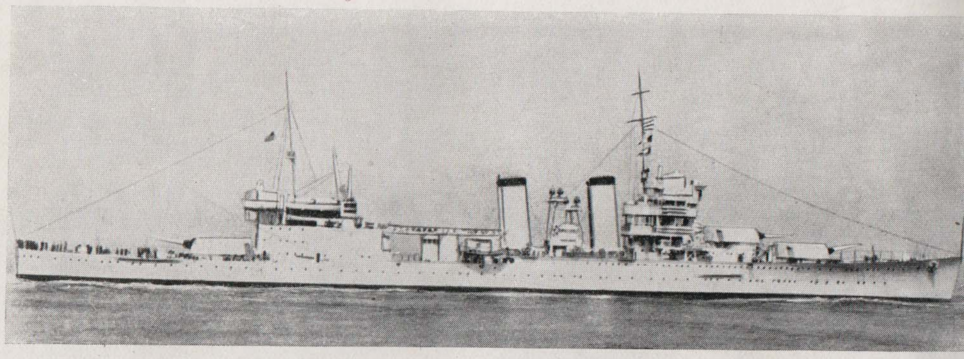
1934 *Photo, Wright & Logan.*

Guns:
- 9—8 inch, 55 cal.
- 8—5 inch AA.
- 2—3 pdr.
- 10—Smaller.

Torpedo Tubes: None
Catapults: 2.
Aircraft: 4.

Armour
- $1\frac{1}{2}$" Side (fore and aft).
- 5" Side (amidships between sections 10—17).
- 3" + 2" Decks.
- 5"—6" Turret faces.
- 3" Turret sides and backs.
- 8" Conning Tower.





ASTORIA.

1934 *Photo, Official.*

Machinery: Parsons geared turbines in *Tuscaloosa, Quincy, Vincennes*; Westinghouse in others. 4 shafts. S.H.P.: 107,000 = 32 kts. (32·7 kts. in later ships). 8 Babcock & Wilcox boilers. Fuel: 1,650 tons.

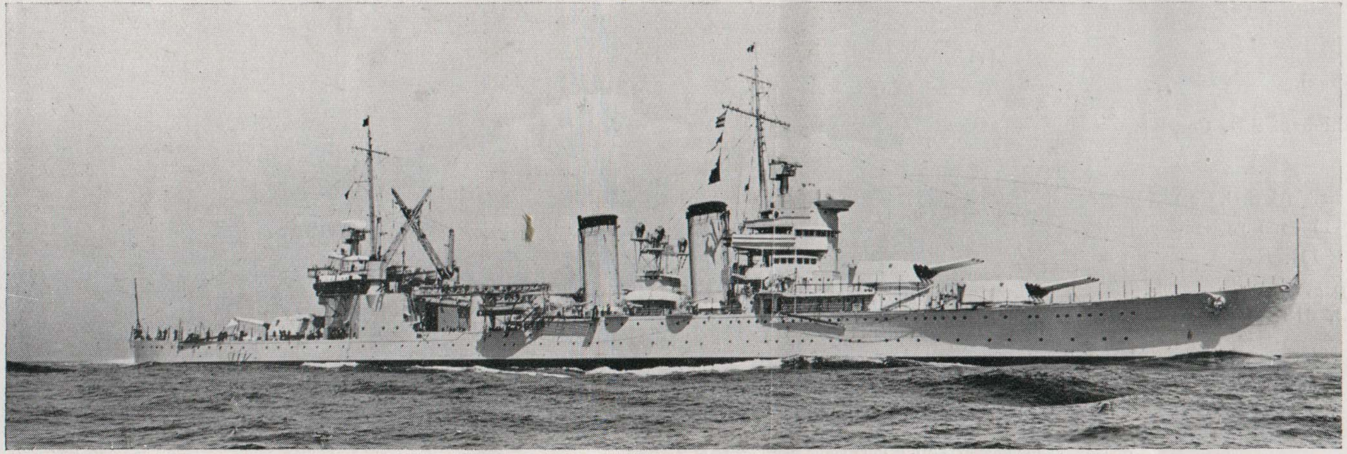
*General Notes.*—In this class, the forecastle deck has been extended to the second funnel with a slight lowering of the freeboard; the bow form altered and overhang dispensed with; bridges raised and pole rig substituted for tripods; AA. guns re-distributed; hangars moved aft and extended to shelter deck, all the boats excepting the lifeboats being stowed on top to avoid interference with the AA. guns. These ships possess better protection than the *Portland* class as armour has been distributed to better advantage on the new design. The utmost economy has been effected in construction, electric welding having been employed extensively and weight saved in every direction even to the extent of using aluminium paint internally. 8 inch guns and mountings are of a lighter model and the weight here saved has been put into armour. There is a certain amount of plating on the bridgework, not shown in the plan. Cost, $11,000,000 apiece.

It is reported that owing to vibration the bridges may be altered.

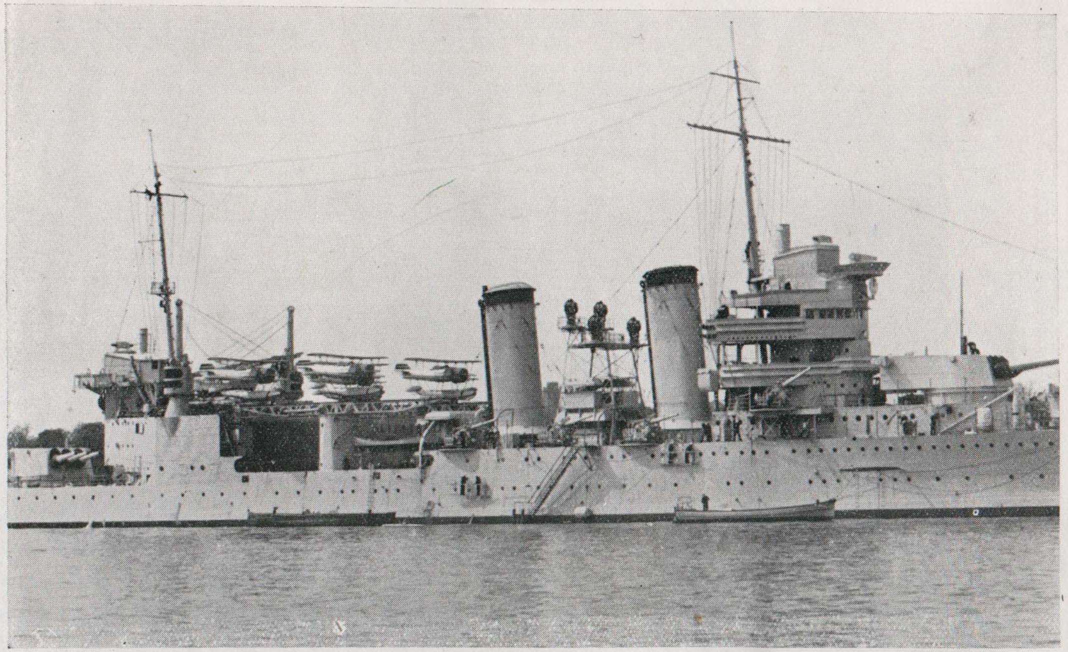
*Quincy's* completion reported to have been delayed owing to machinery defects and other troubles.

*Gunnery Notes.*—8-inch guns elevate to 45°.

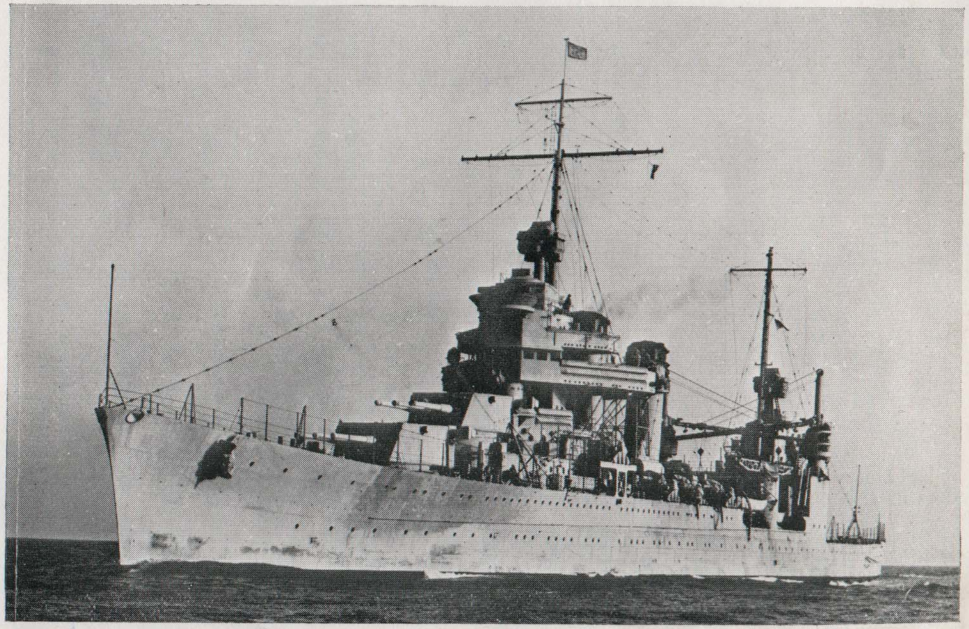
| *Name* | *Builders* | *Machinery* | *Laid down* | *Completed* |
|---|---|---|---|---|
| *Astoria* | Puget Sound Navy Yard | Westinghouse Co. | 1/9/30 | 1/6/34 |
| *Minneapolis* | Philadelphia Navy Yard | Do. | 27/6/31 | 20/6/34 |
| *New Orleans* | New York Navy Yard | Do. | 14/3/31 | 18/4/34 |
| *Tuscaloosa* | New York S.B. Corp. | N.Y.S.B. Corp. | 3/9/31 | 17/8/34 |
| *San Francisco* | Mare Isld. Navy Yard | Westinghouse Co. | 9/9/31 | 23/4/34 |
| *Quincy* | Bethlehem Fore River | Bethlehem Corp. | 15/11/33 | 9/6/36 |
| *Vincennes* | Bethlehem, Fore River | Do. | 2/1/34 | 24/2/37 |
| *Wichita* | Philadelphia Navy Yard | Westinghouse Co. | 28/10/35 | *To be* 1938 |



TUSCALOOSA. 1935, *O. W. Waterman.*



NEW ORLEANS. 1934 *Photo, Hr. Registrator Ossi Janson.*



QUINCY 1936 *Official.*
(Funnels in this ship and *Vincennes* are slightly thinner than in preceding ships.)

(Portland Class—2 Ships).

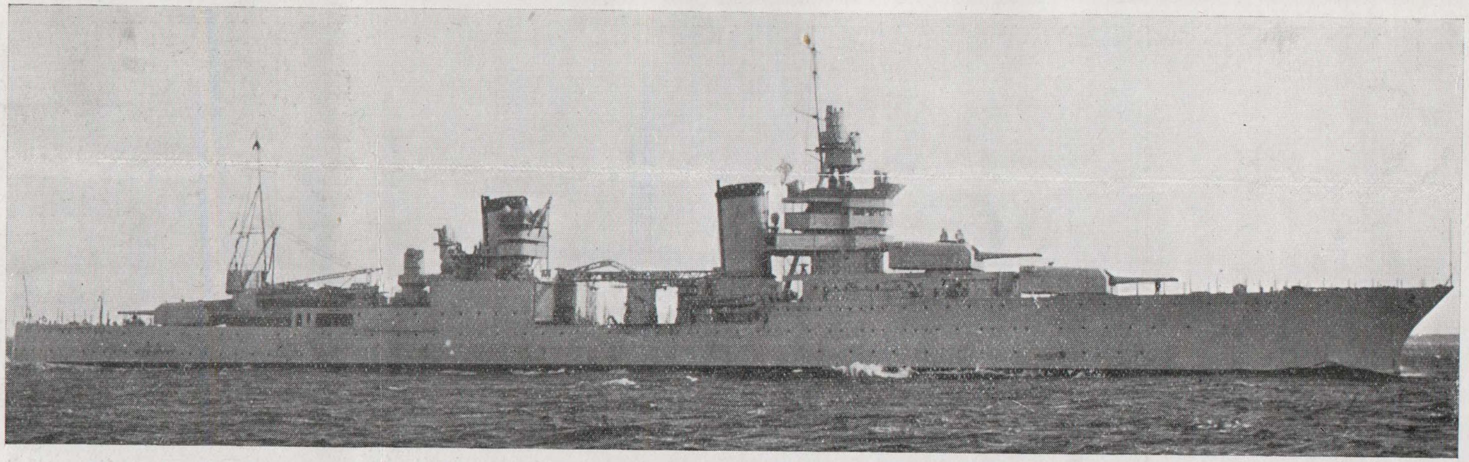
**PORTLAND** (May 21, 1932). (Bethlehem S.B. Co., Quincy.)

† **INDIANAPOLIS** (Nov. 7, 1931). (New York S.B. Co.)

*Standard* Displacement: 9,800 and 9,950 tons respectively. Complement: 551.

/1 deise. 29.7.45

Dimensions: *Indianapolis*, 584 (*w.l.*), $610\frac{1}{4}$ (*o.a.*) × 66 × $17\frac{1}{3}$ feet (*mean*). *Portland*, 582 (*w.l.*), $610\frac{1}{4}$ (*o.a.*) × 66 × $17\frac{1}{12}$ feet (*mean*).



Portland. (Fore funnel since heightened).

1933 *Photo, Official.*

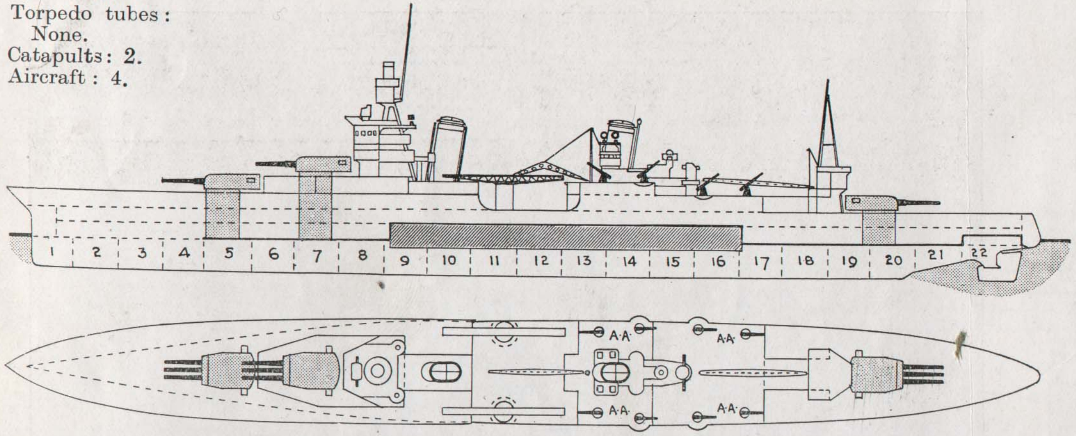
Guns:
9—8 inch, 55 cal.
8—5 inch AA.
2—3 pdr.
10—Smaller

Torpedo tubes: None.

Catapults: 2.

Aircraft: 4.

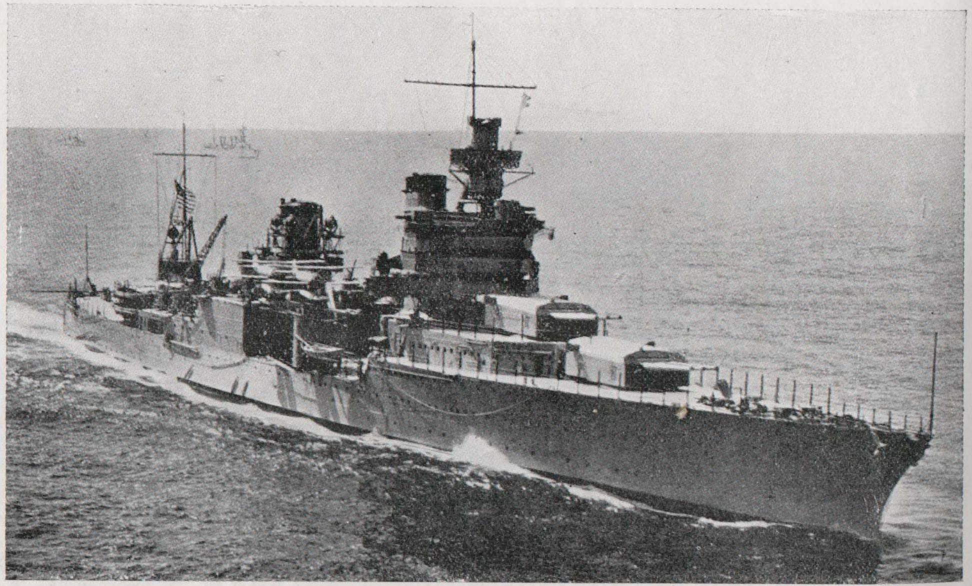
Armour:
3″—4″ Vert. Side
2″+2″ Decks. } Not Official.
$1\frac{1}{2}$″—3″ Turrets.



Machinery: Parsons geared turbines. 4 shafts. S.H.P. 107,000 = 32·7 kts. 8 White-Forster boilers in *Indianapolis*, 8 Yarrow in *Portland*.

*General Notes.*—These ships follow the general design of the *Augusta* class with alterations in weight distribution to lessen metacentric height and make them stiffer at sea. Some 40 tons of plating has been spread over the bridge work, which is higher than in *Augusta*, with a 30 feet reduction in the height of the masthead control top. *Portland* laid down Feb. 17, 1930, completed Feb., 1933. *Indianapolis* laid down March 31, 1930, and completed November, 1932.

*Portland* is a bad roller; *Indianapolis* unaccountably is not. Machinery of both ships supplied by builders.



Portland.

(The funnel raised and AA guns mounted on foremast platforms.)

1934 *Photo.*

(AUGUSTA CLASS 6—ships).

**USTA** (Feb. 1st, 1930). **CHESTER** (July 3rd, 1929). **CHICAGO** (Apr. 10th, 1930).
**STON** (Sept. 7th, 1929). **LOUISVILLE** (Sept. 1st, 1930). **NORTHAMPTON** (Sept. 5th, 1929).

*Standard* displacement, 9,050 tons.* Complement, 611.
Dimensions : 569 (*w.l.*), 600¼ (*o.a.*) × 66 × 16⅓ feet (*mean*), 23 feet (*maximum*).

h, 55 cal.
h AA.
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ubes :
d.
2
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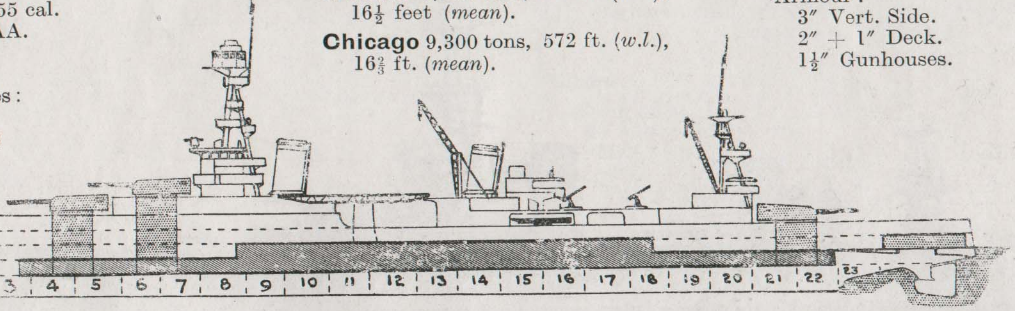
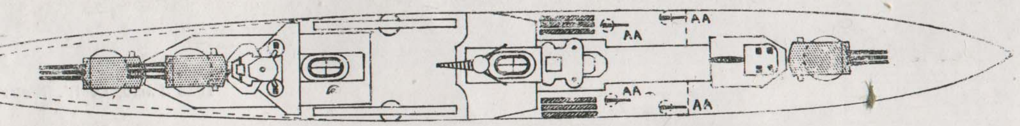
* **Chester** 9,200 tons, 570 ft. (*w.l.*), 16½ feet (*mean*).
**Chicago** 9,300 tons, 572 ft. (*w.l.*), 16⅔ ft. (*mean*).

Armour :
3″ Vert. Side.
2″ + 1″ Deck.
1½″ Gunhouses.





Machinery : Parsons geared turbines. 4 shafts. Designed S.H.P. 107,000 = 32·7 kts. 8 White-ster boilers. Radius : 13,000 miles at 15 kts. Fuel : 1,500 tons.

*eral Notes.*—Authorised 1926–27 under Act of December, 1924, as Nos. 26–31. Although this class are considerably improved editions of the *Pensacola*, they have not proved particularly successful. The previous class having worked out at 9,100 tons only, the dimensions were increased and a forecastle deck added. Weight was saved by reducing and re-grouping the armament, while a certain amount of extra protection was worked in. Because of vibration in the *Pensacola* the hull was stiffened to try and overcome this defect. Owing to the centre of gravity being placed too low, they roll considerably and *Northampton* has been fitted with bigger bilge keels. If the anti-rolling tanks in *Pensacola* are more successful in overcoming this defect, these will be fitted to the remainder of the class. Some have developed cracked stern posts due to weight-saving and/or vibration. Four planes are carried, two on top of and two inside the large hangars amidships. *Houston*, *Augusta* and *Chicago* are fitted as flagships and extra accommodation has been secured by extending the forecastle aft to the catapult.

*nery Notes.*—Elevation of 8 inch guns, 45°. Control very accurate.

*neering Notes.*—Heating surface, 95,040 sq. feet. Machinery weighs 2,161 tons. 4 Turbo generator sets ; 250 kilo-watts each ; 120—240 volts ; built by General Electric Co. There are 4 boiler rooms.

*ial Note.*—Torpedo Tubes are to be removed and additional AA. guns mounted on the hangar. *Chicago's* modernisation completed Dec. 1935.

30.1.43
1 3 42 [illegible]
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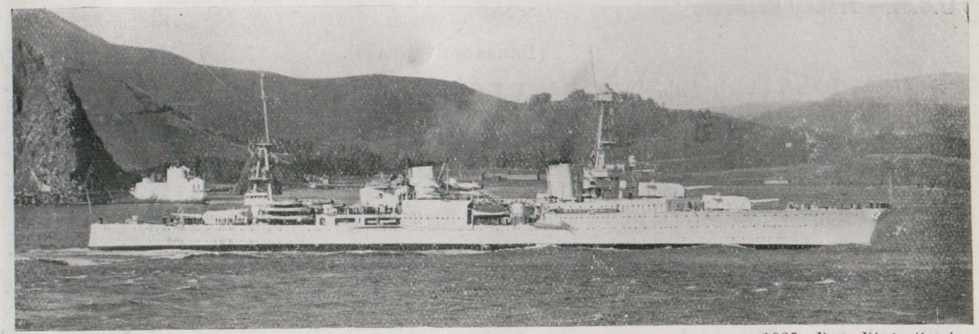
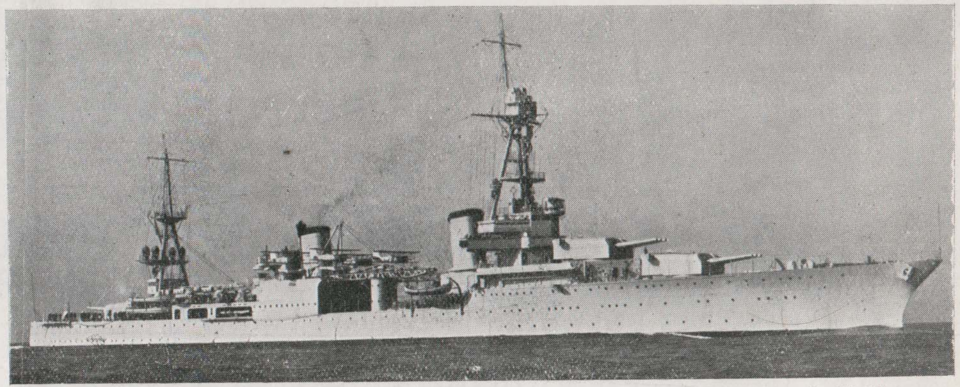
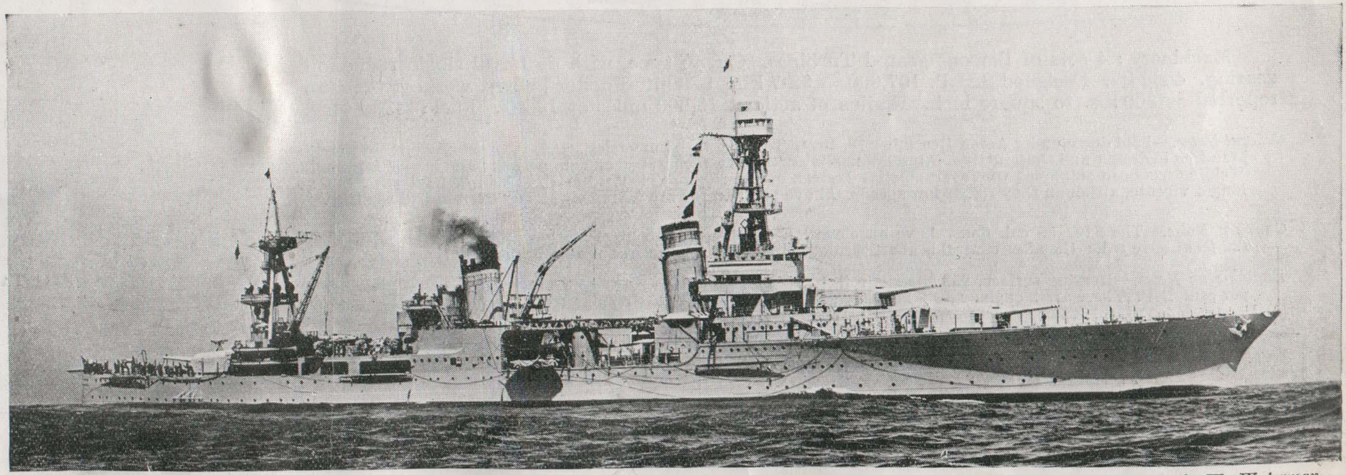
| | *Builders* | *Machinery* | *Laid down* | *Completed* | *Trials* |
|---|---|---|---|---|---|
| | Newport News Co. | N.N. Co. | 2/7/28 | Jan., 1931 | 33·11 |
| | Am. Brown Boveri Cpn. | N.Y.S.B.C. | 6/3/28 | June, 1930 | 33·04 |
| | Mare Island Navy Yard | G.E. Co. | 10/9/28 | March, 1931 | — |
| | Newport News Co. | N.N. Co. | 1/5/28 | June, 1930 | 33·02 |
| | Puget Sound Navy Yard | P.S.N.Y. | 4/7/28 | March, 1931 | 32·74 |
| n | Bethlehem S.B. Co., Quincy | Bethlehem | 12/4/28 | May, 1930 | 33·10 |



AUGUSTA (Now has larger tops and short foretopmast.) (*Houston* similar ; *Chicago* has clinker screen to fore funnel.) 1935, *Bear Photo Service.*



CHESTER (Now as *Northampton*, below.) 1933 *Photo, O. W. Waterman*



NORTHAMPTON. (Observe raised fore funnel and short foretopmast.) (*Chester*, *Louisville*, similar.) 1935, *O. W. Waterman.*

(Pensacola Class).

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**PENSACOLA** (April 25th, 1929), **SALT LAKE CITY** (Jan. 23rd, 1929).

Displacement, 9,100 tons.

Complement, 612.

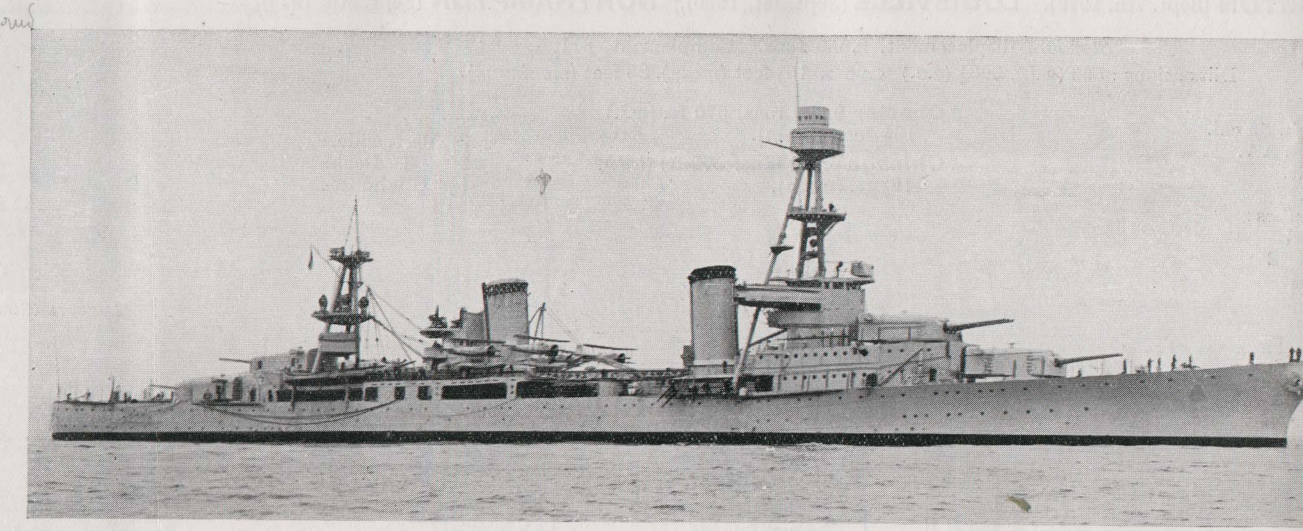
Length (*w.l.*) 558 feet; *o.a.*, 585½ feet. Beam, 65¼ ft.

*Mean* draught (at *normal* displacement), 16 ft. 2 in. *Max.* draught, 22 ft.

Guns:
- 10—8 inch, 55 cal.
- 4—5 inch, 25 cal. AA.
- 2—3 pdr.

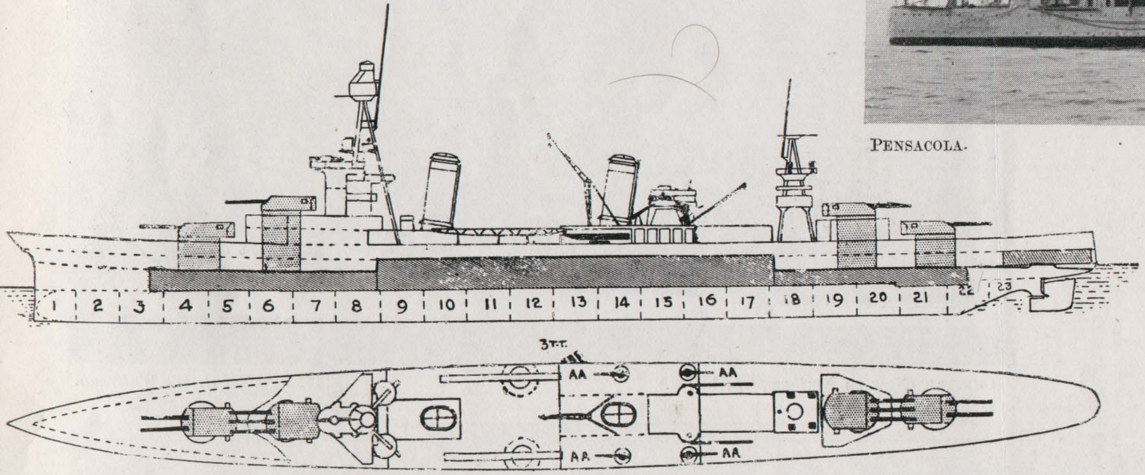
Torpedo tubes: Removed.
Catapults: 2.
Aircraft: 4.

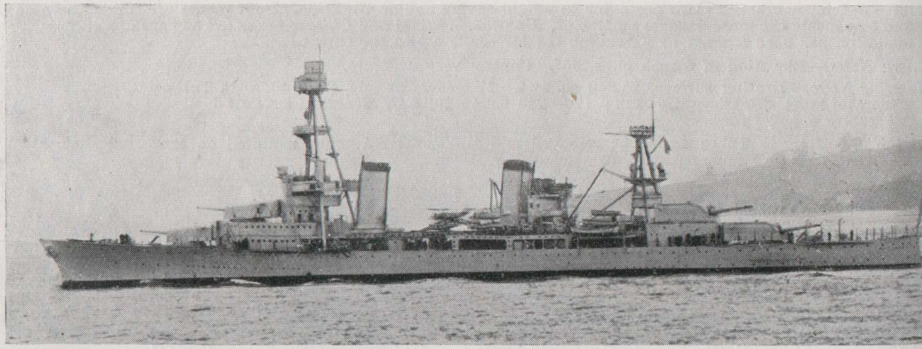
Armour:
- 3″ side.
- 2″+1″ deck.
- 1½″ gunhouses.



Pensacola.

1935 *Photo, O. W. Watern*





Salt Lake City.

1935, O

Machinery: 4 sets of Parsons geared Turbines. Cramp type, with de Laval single reduction gearing. 4 shafts. Designed S.H.P. 107,000 = 32·7 kts. 8 White-Forster boilers, working pressure reported as 300 lbs. to square inch. Radius of action: 13,000 miles at 15 kts. Fuel: 1500 tons.

*General Notes.*—Laid down under Act of December 18, 1924. Tons per inch immersion, 60·7. Utmost economy in weights practised in design and construction. Aluminium alloy fittings replacing steel and aluminium paint is used internally. Welding has been employed wherever possible instead of riveting. They suffer from lack of freeboard, but no longer vibrate, although they roll at low speeds. Above 20 kts. they are extremely steady even in bad weather.

*Gunnery Notes.*—The 8 in. 55 cal. guns. have an elevation of 45°: fore control station at the mast head is about 120 feet above w.l.: the after control is abaft second funnel, and AA. control on fore bridge.

*Engineering Notes.*—Heating surface, 95,000 square feet. Machinery weighs 2,161 tons. Can steam at 30 kts. with 60 per cent H.P. There are 2 engine and 2 boiler rooms, the outboard shafts coming from the foremost engine rooms.

| *Name* | *Builders* | *Machinery* | *Laid down* | *Completed* | *Trials* |
|---|---|---|---|---|---|
| *Pensacola*<br>*Salt Lake City* | New York N. Yd.<br>Am. Brown Boveri Cpn. | Am. B. B. Cpn. | Oct. 1926<br>June 1927 | 6 Feb., '30<br>11 Dec., '29 | =32·66<br>107,746=32·78 |

## BROOKLYN CLASS (11 SHIPS)

**BROOKLYN** (Nov. 30, 1936), **PHILADELPHIA** (Nov. 17, 1936), **SAVANNAH** (May 8, 1937), **NASHVILLE** (Oct. 2, 1937), **PHOENIX**, **BOISE** (Dec. 1, 1936), **HONOLULU** (Aug. 26, 1937), **HELENA**, **ST. LOUIS**, and 2 more (to be built under 1938 Programme).

(Могами)

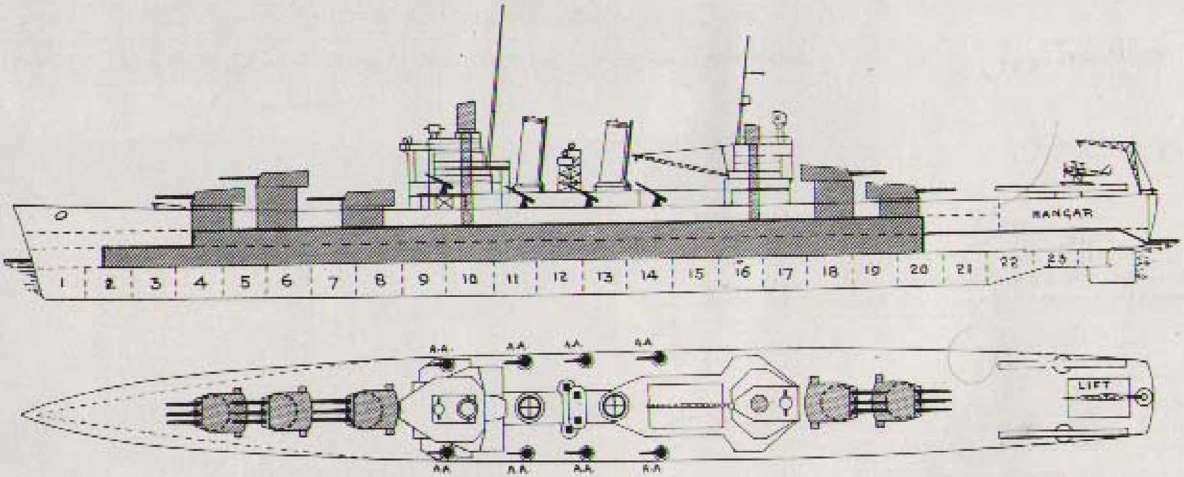
Displacement: 10,000 tons. Complement: 868 (*Helena* and *St. Louis*, 888).
Dimensions: 600 (*w.l.*) × 61½ × 19¾ feet (*mean*).

Guns:
**15**—6 inch.
**8**—5 inch, 38 cal. AA.
—M.G.
Aircraft:
**4**, with 2 catapults.

Armour: (Unofficial)
3″ Side.
3″ + 2″ Decks.
5″ Gunhouses.
8″ C.T.

9 6.3.43 [illegible] [illegible]

+ Juneau [illegible] [illegible] [illegible]
+ Atlanta [illegible] [illegible] [illegible]



Machinery: Geared turbines. 4 shafts. S.H.P.: 100,000 = 32·5 kts. Boilers: 8 Babcock & Wilcox Express type.

*Note.*—The first four of this class were ordered under the Emergency Programme of 1933: the next three under the provisions of the "Vinson Bill"; and the last pair under the 1935–36 Programme. They are a reply to the Japanese "Mogami" class. Cost approaches $12,000,000 apiece.

*Aircraft Note*—The hangar included in hull right aft is a completely new departure. It is provided with a lift and can accommodate 8 aircraft, though 4 is normal peace complement. Presence of this hangar accounts for very wide flat counter and high freeboard aft, which is also utilised to give after guns higher command.

| *Name* | *Builders* | *Machinery* | *Laid down* | *Completed* |
|---|---|---|---|---|
| *Brooklyn* | New York Navy Yd. | Builders in each case | 12/3/35 | 1/11/37 |
| *Philadelphia* | Philadelphia Navy Yd. | | 28/5/35 | 19/10/37 |
| *Savannah* | New York S.B. Corp. | | 31/5/34 | to be 1938 |
| *Nashville* | Do. | | 24/1/35 | |
| *Phœnix* | Do. | | 15/4/35 | |
| *Boise* | Newport News Co. | | 1/4/35 | |
| *Honolulu* | New York Navy Yd. | | 10/9/35 | |
| *Helena* | Do. | | 9/12/36 | to be 1939 |
| *St Louis* | Newport News Co. | | 10/12/36 | |

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Кр ТЧ ~~[illegible]~~ 3/17000
(Кр 2-4) — De Moine 21000 [illegible] 9-203 12-127
Нортхемптон
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49

(Omaha Class—10 Ships.) ~~Мурманск~~ Мурманск 1944-49г

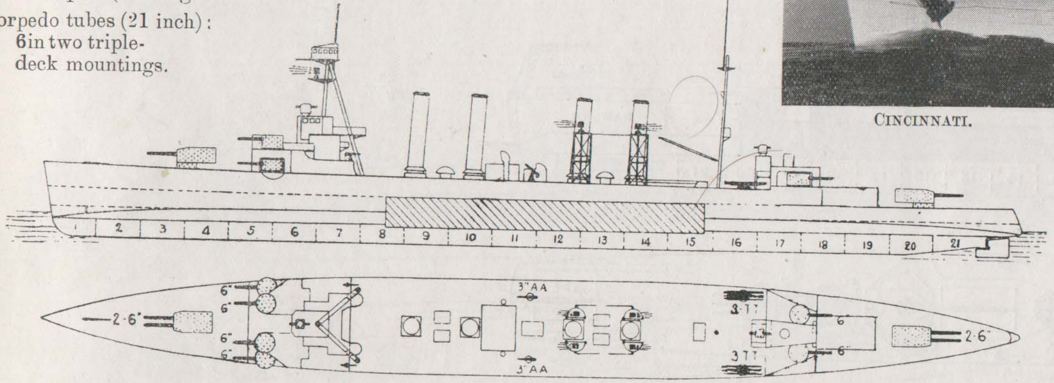
**OMAHA** (Dec. 14th, 1920),
**RALEIGH** (Oct. 25th, 1922),
**CONCORD** (Dec. 15th, 1921),
**MEMPHIS** (April 17th, 1924),
**MARBLEHEAD** (Oct. 9th, 1923),
**MILWAUKEE** (Mar. 24th, 1921),
**DETROIT** (June 29th, 1922),
**TRENTON** (April 16th, 1923),
**RICHMOND** (Sept. 29th, 1921),
**CINCINNATI** (May 23rd, 1921).

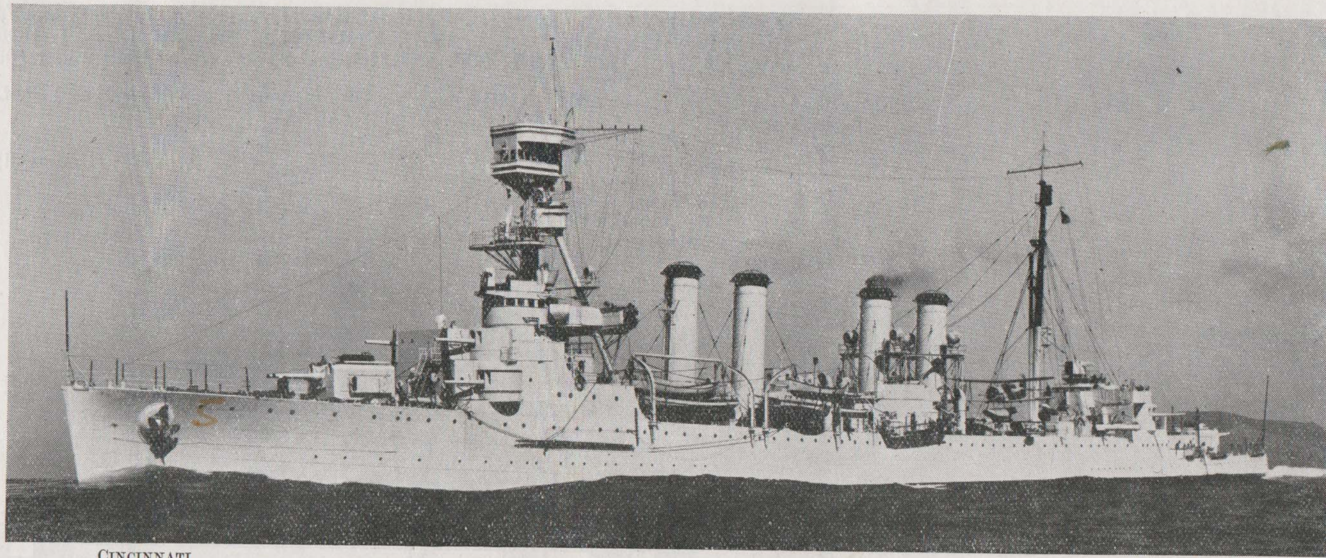
Displacement: 7050 tons. Complement: 458.

Dimensions: 550 (*w.l.*), 555½ (*o.a.*) × 55⅓ × 13½ feet (*mean*), 20 feet (*max*).

Guns:
10—6 inch, 53 cal. Mk. XII.
(12—6 inch in *Concord, Memphis, Milwaukee, Omaha, Trenton*).
4—3 inch, 50 cal. AA.
2—3 pdr. (saluting).
Torpedo tubes (21 inch):
6 in two triple-deck mountings.

Armour:
3″ Side ......... .........
1½″ Upper Deck .....





CINCINNATI.

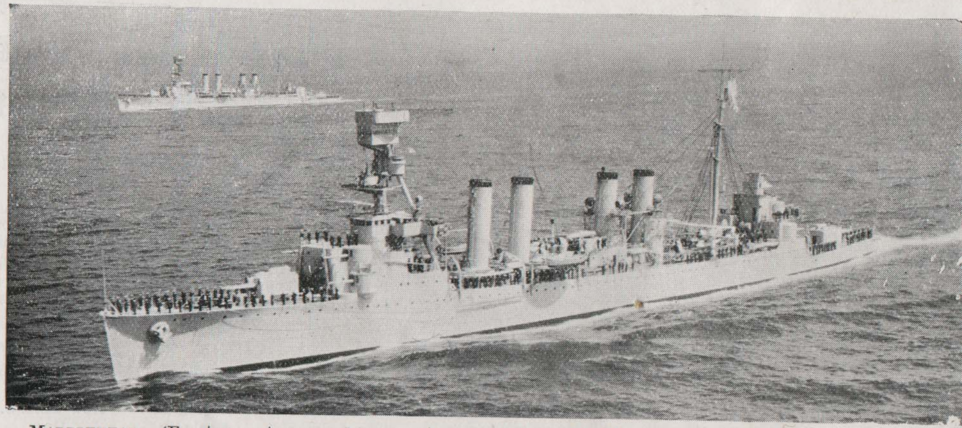
1937, *O. W. Waterman.*

Machinery: Turbines (see Table for types), with reduction gears. Designed S.H.P. 90,000 = 35 kts. 4 screws. Boilers: see Table. Fuel: oil only; *about* 2000 tons (300,000 gallons). Radius of action: 10,000 miles at 15 knots, 7,200 at 20 kts.

| *Name.* | *Built and Engined by* | *Laid down* | *Com-pleted* | *Trials* | *Turbines.* | *Boilers* | *Heating Surface (sq. ft.)* |
|---|---|---|---|---|---|---|---|
| *Omaha* | Todd Co., Tacoma | 6 Dec. '18 | Feb. '23 | 94,290 = 34·87 | Westghs. | 12 Yarrow | 90600 |
| *Milwaukee* | " " | 13 Dec. '18 | June '23 | 90,060 = 34·64 | " | 12 Yarrow | |
| *Cincinnati* | " " | 15 May '20 | Dec. '23 | 94,290 = 34·44 | " | 12 Yarrow | |
| *Raleigh* | Bethlehem Co., Quincy | 16 Aug. '20 | Feb. '24 | 97,722 = 34·63 | Curtis | 12 Yarrow | 90084 |
| *Detroit* | " " " | 10 Nov. '20 | July '23 | 97,375 = 34·63 | " | 12 Yarrow | |
| *Richmond* | Wm. Cramp & Sons | 16 Feb. '20 | June '23 | 95,000 = 34·2 | Parsons | 12 White-F | 90840 |
| *Concord* | " " " | 29 Mar. '20 | Nov. '23 | 92,772 = 33·48 | " | 12 White-F | |
| *Trenton* | " " " | 18 Aug. '20 | April, '24 | 33·91 | " | 12 White-F | |
| *Marblehead* | " " " | 4 Aug. '20 | Sept. '24 | 95,950 = 34·42 | " | 12 White-F | |
| *Memphis* | " " " | 14 Oct. '20 | Jan. '25 | 34·43 | " | 12 White-F | |

*General Notes.*—In *Marblehead, Cincinnati, Detroit, Raleigh, Richmond,* there are only **10—6 inch**. Armament of remainder will be altered similarly in due course.

*Gunnery Note:*—Max. range is 22,000 yards; effective at 18,000 yards.

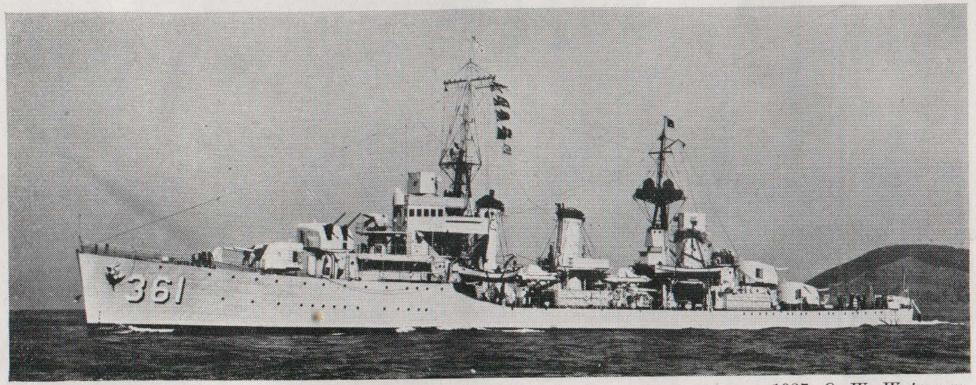


MARBLEHEAD. (Foretopmast removed in some to provide for 4 AA. MG. on control top.)

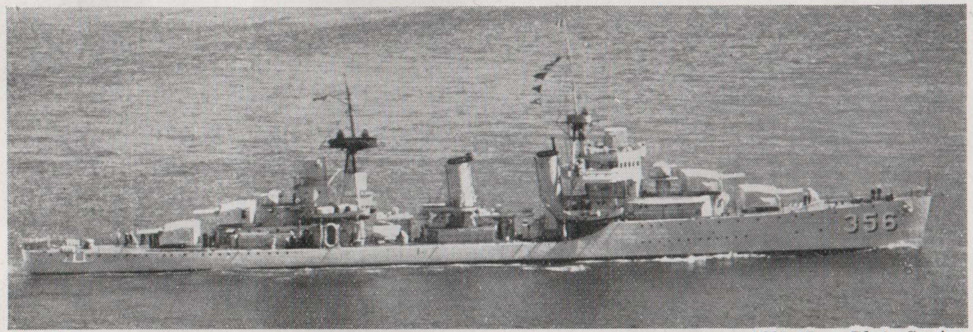
1935, *Official.*

Вильмингтон
Вилмс Л.Пи

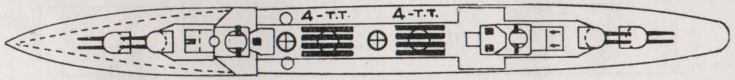
## Flotilla Leaders
## 13 Porter Class.



CLARK. 1937, *O. W. Waterman.*



PORTER. 1937, *Bear Photo Service.*



4 *New York S.B. Corpn.* : **Porter, Selfridge, McDougal, Winslow.**
4 *Bethlehem S.B. Corpn., Fore River* : **Phelps, Clark, Moffett, Balch.**
2 *Federal S.B & D.D. Co* : **Somers, Warrington.**
3 *Bath Iron Works Corpn.* .**Sampson, Jouett, Davis.**

Displacement : 1,850 tons (*Phelps* and *Clark*, as completed, 1,805 tons). Complement : 175. Dimensions : 372 (*w.l.*) × 36¼ × 10⅓ feet (*mean* draught). Guns : **8**—5 inch, 38 cal., **10** M.G. Tubes : **8**—21 inch. Machinery : Geared turbines. S.H.P. : 50,000 = 37 kts. 4 Babcock and Wilcox high pressure boilers. Oil fuel: *circa* 500 tons. Cost approaches $4,000,000 each.

| *Name* | *No.* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|
| *Porter* | 356 | 18/12/33 | 12/12/35 | 27/8/36 |
| *Selfridge* | 357 | 18/12/33 | 18/4/36 | 25/11/36 |
| *McDougal* | 358 | 18/12/33 | 17/7/36 | 23/12/36 |
| *Winslow* | 359 | 18/12/33 | 21/9/36 | 17/2/37 |
| *Phelps* | 360 | 2/1/34 | 18/7/35 | 26/2/36 |
| *Clark* | 361 | 2/1/34 | 15/10/35 | 20/5/36 |

| *Name* | *No.* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|
| *Moffett* | 362 | 2/1/34 | 11/12/35 | —/ 9/37 |
| *Balch* | 363 | 16/5/34 | 24/3/36 | |
| *Somers* | 381 | 27/6/35 | 13/3/37 | |
| *Warrington* | 383 | 10/10/35 | 15/5/37 | |
| *Sampson* | 394 | 8/4/36 | | |
| *Davis* | 395 | 28/7/36 | | |
| *Jouett* | 396 | 26/3/36 | | |

1 26 10 42 п/л .
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## Destroyers.
## 20 Sims Class (*1936-37 Programmes*)

*Building.*

2 *Newport News Co.* : **Mustin, Russell,**
2 *Federal S.B. & D.D. Co.* : **Anderson, Hamman.**
4 *Bath Iron Works Corpn.* : **Hughes, Sims,** No. 423, No. 424.
4 *Boston Navy Yard* : **O'Brien, Walke,** No. 425, No. 426.
2 *Norfolk Navy Yard* : **Morris, Wainwright.**
1 *Charleston Navy Yard* : **Roe,**
1 *Philadelphia Navy Yard* : **Buck,**

4 6 7 42 п/л Мидуэй
6 7 5 42 ав Коралл
9 15 9 42 п/л Соломон
10 15 11 42 надв Гвадалкан
16 9 10 43 п/л Салерно

2 *Bethlehem (Fore River)* : Nos. 421, 422.
2 *Unassigned* : Nos. 427, 428.
*Standard* displacement : 1,500 tons. May be similar to previous group, below.

## 12 Maury Class (*1935 Programme*

*Building.*

3 15 11 42 надв Саво
9 11 9 43 -"- Салерно

*Bethrlehem S.B. Corpn., S. Francisco* : **Maury, McCall.**
*Federal S.B. & D.D. Co.* : **Benham, Ellet, Lang.**
*Boston Navy Yard* : **Mayrant, Trippe.**
*Philadelphia Navy Yard* : **Rhind.**
*Norfolk Navy Yard* : **Rowan, Stack.**
*Charleston Navy Yard* : **Sterett.**
*Puge Sound Navy Yard* : **Wilson.**

*Standard* displacement : 1,500 tons. No other details yet available to show to what extent (if any) they may differ from preceding groups on following page.

| *Name* | *No.* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|
| *Benham* | ~~397~~ | 1/9/36 | | |
| *Ellet* | 398 | 3/12/36 | | |
| *Lang* | 399 | 3/12/36 | | |
| *McCall* | 400 | 17/3/36 | 20/11/37 | |
| *Maury* | 401 | 24/3/36 | | |
| *Mayrant* | 402 | 15/4/37 | | |

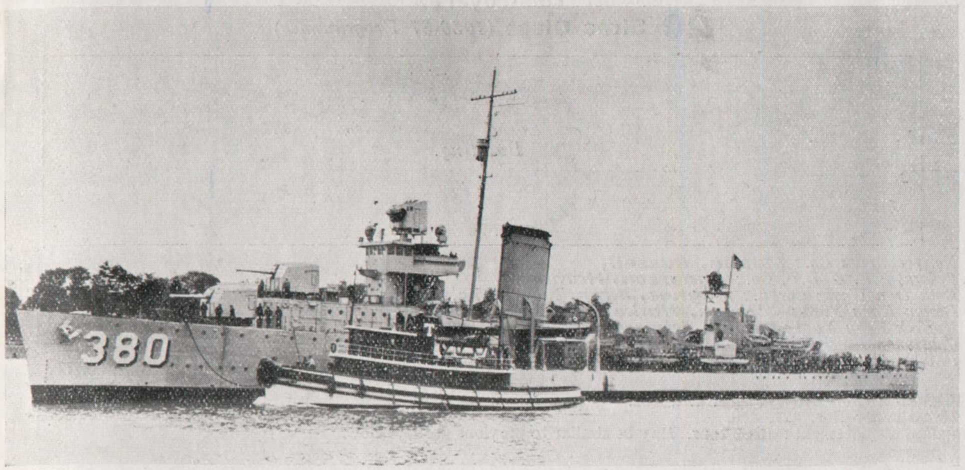
| *Name* | *No.* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|
| *Trippe* | 403 | 15/ 4/37 | | |
| *Rhind* | 404 | /37 | | |
| *Rowan* | ~~405~~ | 25/6/27 | | |
| *Stack* | 406 | 25/6/37 | | |
| *Sterett* | 407 | 2/12/36 | | |
| *Wilson* | 408 | 22/3/37 | | |

| *Name* | *No.* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|
| *Sims* | ~~409~~ | 15/7/37 | | |
| *Hughes* | 410 | | | |
| *Anderson* | 411 | | | |
| *Hammann* | ~~412~~ | | | |
| *Mustin* | 413 | | | |
| *Russell* | 414 | | | |
| *O'Brien* | ~~415~~ | 15/4/37 | | |
| *Walke* | ~~416~~ | 15/4/37 | | |
| *Morris* | 417 | | | |
| *Roe* | 418 | | | |

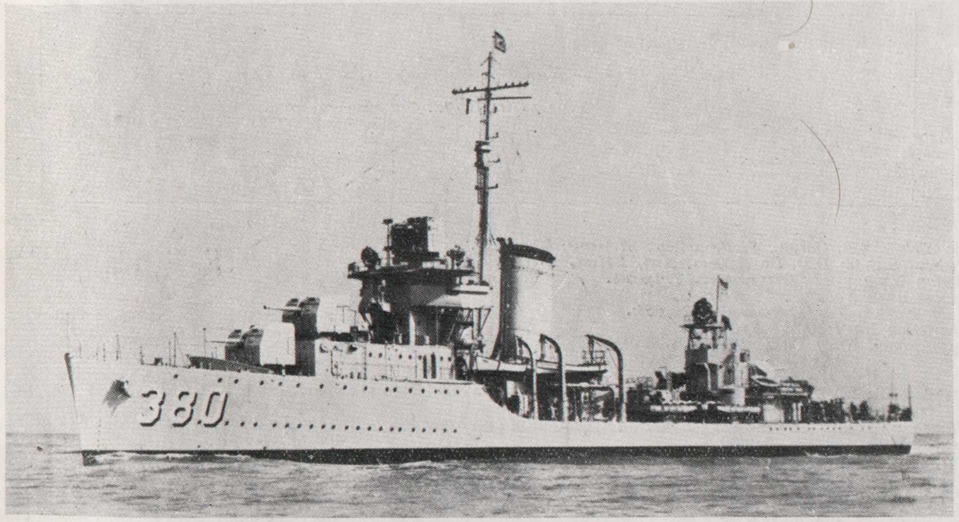
| *Name* | *No.* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|
| *Wainwright* | 419 | | | |
| *Buck* | ~~420~~ | | | |
| | 421 | | | |
| | 422 | | | |
| | 423 | | | |
| | 424 | | | |
| | 425 | | | |
| | 426 | | | |
| | 427 | | | |
| | 428 | | | |

Эм Мидуэй Корал

## 10 Craven Class (*1934 Programme*)



Gridley. 1937, *courtesy "Our Navy."*



Gridley. 1937, *courtesy "Our Navy."*

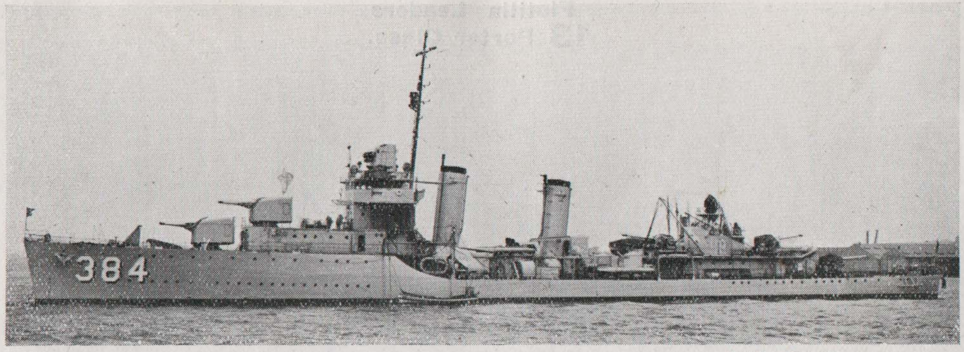
2 *Bethlehem S.B. Corpn., Fore River:* **Gridley, Craven.**
3 *Norfolk Navy Yard:* **Bagley, Blue, Helm.**
2 *Boston Navy Yard:* **Mugford, Ralph Talbot.**
1 *Mare Island Navy Yard:* **Henley.**
2 *Paget Sound Navy Yard:* **Patterson, Jarvis.**

*Standard* displacement: 1,500 tons. Complement: 172. Dimensions: 334 (*w.l.*) × 34 $\frac{2}{3}$ × 9$\frac{5}{6}$ feet (*mean*). Guns: 4—5 inch, 38 cal. (dual purpose), **5** M.G. Tubes: **16**—21 inch (quadrupled). Machinery: Parsons geared turbines. S.H.P.: 42,800 = 36·5 kts. Boilers: 4 Express type (except *Gridley* and *Craven*, 4 Bethlehem Yarrow). Oil fuel: 400 tons. Radius: 6,000 miles. Cost ranges from $3,400,000 to $3,750,000.

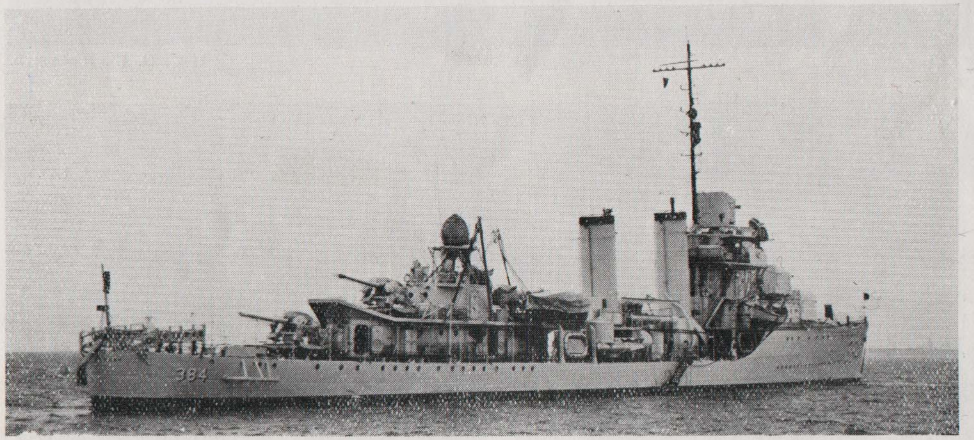
| *Name* | *No.* | *Laid down* | *Launched* | *Completed* | *Name* | *No.* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|---|---|---|---|---|
| *Gridley* | 380 | 3/6/35 | 1/12/36 | 23/6/37 | *Mugford* | 389 | 28/10/35 | 31/10/36 | 15/10/37 |
| *Craven* | 382 | 3/6/35 | 25/2/37 | 2/9/37 | *Ralph Talbot* | 390 | 28/10/35 | 31/10/36 | /37 |
| *Bagley* | 386 | 31/7/35 | 3/9/36 | 16/7/37 | ~~*Henley*~~ | ~~391~~ | 28/10/35 | 12/1/37 | 7/10/37 |
| ~~*Blue*~~ | ~~387~~ | 25/9/35 | 27/5/37 | 25/9/37 | *Patterson* | 392 | 22/7/35 | 6/5/37 | |
| *Helm* | 388 | 25/9/35 | 27/5/37 | | ~~*Jarvis*~~ | ~~393~~ | 21/8/35 | 6/5/37 | |

387
391

## 2 Dunlap Class (*1934 Programme*)



Dunlap. 1937, *Mr. James Downey.*



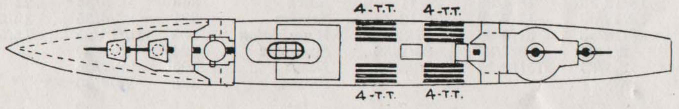
Dunlap. 1937, *Mr. James Downey.*

*Plan as* Mahan *class*

2 *United Dry Docks:* **Dunlap, Fanning.**

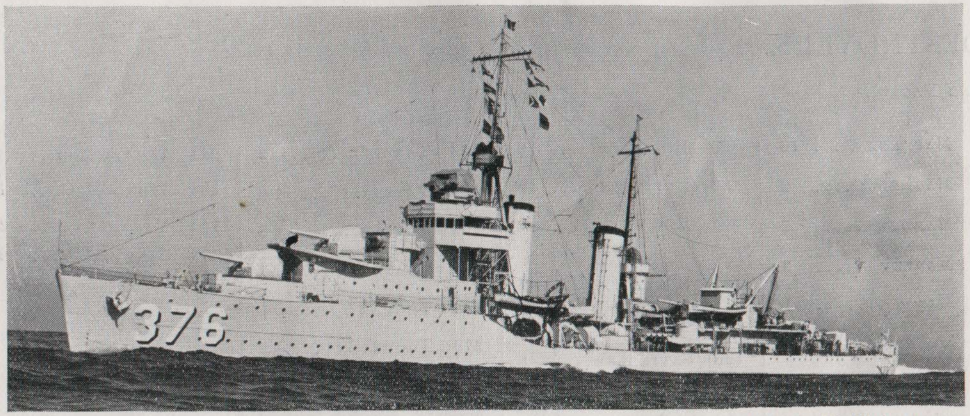
*Standard* displacement: 1,500 tons. Dimensions: 334 (*w.l.*) × 34$\frac{5}{6}$ × 9$\frac{5}{6}$ feet (*mean*). Guns: **5**—5 inch, 38 cal. (dual purpose), **5** M.G. Tubes: **12**—21 inch (quadrupled). Machinery: Parsons geared turbines. S.H.P.: 42,800 = 36·5 kts. Boilers: 4 Express type. Oil fuel: 400 tons. Radius: 6,000 miles.

| *Name* | *No.* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|
| *Dunlap* | 384 | 10/4/35 | 18/4/36 | 12/6/37 |
| *Fanning* | 385 | 10/4/35 | 18/9/36 | 8/10/37 |

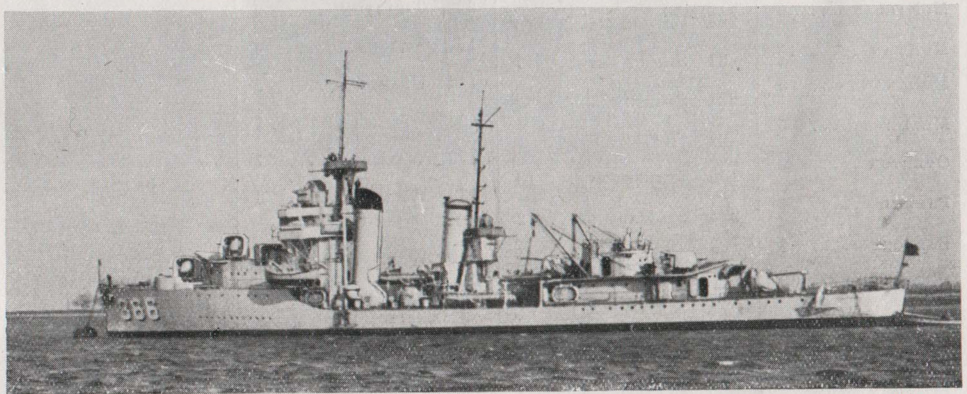


Craven.

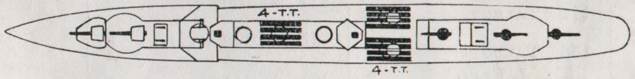
## 16 Mahan Class (*1933 Programme*)



CUSHING. 1937, *O. W. Waterman.*



DRAYTON 1936.

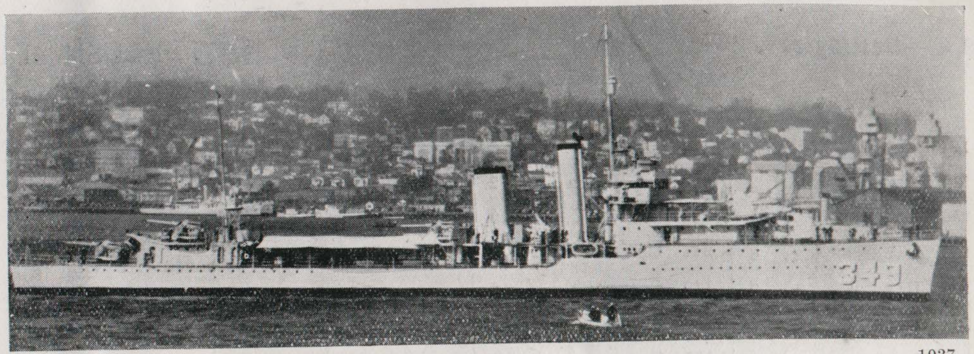


2 *Bath Iron Works Corpn.*: **Drayton, Lamson.**
2 *Boston Navy Yard*: **Case, Conyngham.**
2 *United Dry Docks*: **Mahan, Cummings.**
2 *Federal S.B. and D.D. Co.*: **Flusser, Reid**
2 *Philadelphia Navy Yard*: **Cassin, Shaw.**
2 *Norfolk Navy Yard*: **Tucker, Downes.**
2 *Puget Sound Navy Yard*: **Cushing, Perkins.**
2 *Mare Island Navy Yard*: **Smith, Preston.**

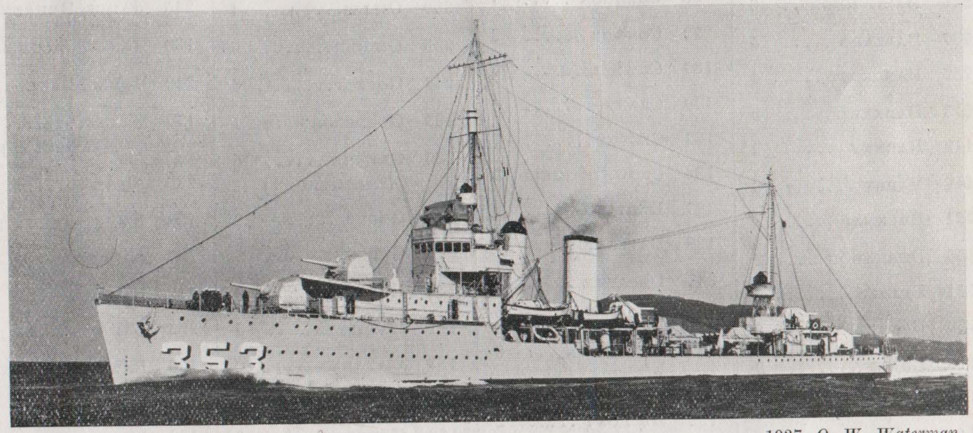
*Standard* displacement: 1,500 tons (except *Mahan*, 1,450 tons; *Cummings, Cushing, Perkins*, 1,465 tons. *Drayton, Lamson, Flusser, Reid, Smith, Preston*, 1,480 tons). Dimensions: 334 (*w.l.*) × $34\frac{5}{6}$ × $9\frac{5}{6}$ feet (*mean*). Guns: **5**—5 inch, 38 cal. (dual purpose), **5** M.G. Tubes: **12**—21 inch (quadrupled). Machinery: Geared turbines. S.H.P.: 42,800 = 36·5 kts. Boilers: 4 Express type. Oil fuel: 400 tons. Radius: 6,000 miles. Cost ranges from $3,400,000 to $3,750,000.

| *Name* | *No.* | *Laid down* | *Launched* | *Completed* | *Name* | *No.* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|---|---|---|---|---|
| *Mahan* | 364 | 12/6/34 | 15/10/35 | 16/11/36 | *Cassin* | 372 | 1/10/34 | 28/10/35 | 6/4/37 |
| *Cummings* | 365 | 26/6/34 | 11/12/35 | 25/11/36 | *Shaw* | 373 | 1/10/34 | 28/10/35 | 20/4/37 |
| *Drayton* | 366 | 20/3/34 | 26/3/36 | 5/10/36 | *Tucker* | 374 | 15/8/34 | 26/2/36 | 30/3/37 |
| *Lamson* | 367 | 20/3/34 | 17/6/36 | 4/1/37 | *Downes* | 375 | 15/8/34 | 22/4/36 | 26/3/37 |
| *Flusser* | 368 | 4/6/34 | 28/9/35 | 1/12/36 | *Cushing* | 376 | 15/8/34 | 31/12/35 | 10/12/36 |
| *Reid* | 369 | 25/6/34 | 11/1/36 | 4/1/37 | *Perkins* | 377 | 15/11/34 | 31/12/35 | 10/12/36 |
| *Case* | 370 | 19/9/34 | 14/9/35 | 20/3/37 | *Smith* | 378 | 27/10/34 | 20/2/36 | 31/12/36 |
| *Conynham* | 371 | 19/9/34 | 14/9/35 | 10/4/37 | *Preston* | 379 | 27/10/34 | 22/4/36 | 23/1/37 |

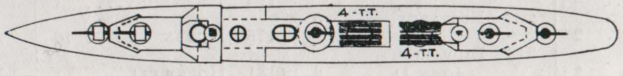
## 8 Farragut Class (*1932 Programme.*)



DEWEY. 1937.



DALE. 1937, *O. W. Waterman.*



1 *Bethlehem S.B. Corpn., Fore River*: **Farragut.**
2 *New York Navy Yard*: **Hull, Dale.**
1 *Bath Iron Works Corpn.*: **Dewey.**
2 *Boston Navy Yard*: **MacDonough, Monaghan.**
1 *Philadelphia Navy Yard*: **Aylwin.**
1 *Puget Sound Navy Yard*: **Worden.**

*Standard* displacement: 1,395 tons (except *Farragut*, 1,365 tons; *Dewey*, 1,345; *Aylwin*, 1,375); *Worden*, 1410 tons. Length, (*o.a.*), $341\frac{1}{4}$ feet; (*w.l.*), 331 feet (except *Farragut*, 330; *Dewey*, 329 feet). Beam, $34\frac{1}{6}$ feet. *Mean* draught, $8\frac{5}{6}$ feet (except *Farragut*, $8\frac{2}{3}$ feet; *Dewey*, $8\frac{7}{12}$ feet; *Aylwin*, $8\frac{3}{4}$ feet). *Maximum* draught, $15\frac{1}{2}$ feet. Complement, 162. Guns: **5**—5 inch, 38 cal. (dual purpose), **4** M.G. Tubes: **8**—21 inch (quadrupled). Machinery: Geared turbines. S.H.P. 42,800 = 36·5 kts. (Max. trial speed reported to be 41 kts.) Boilers: 4 Yarrow (by Bethlehem), high pressure. Oil fuel: 400 tons. Radius: 6,000 miles. Cost ranges from $3,400,000 to $3,750,000.

| *Name* | *No.* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|---|
| *Farragut* | 348 | 20/9/32 | 15/3/34 | 18/6/34 |
| *Dewey* | 349 | 16/12/32 | 28/7/34 | 3/10/34 |
| *Hull* | 350 | 7/3/33 | 31/1/34 | 24/5/35 |
| *MacDonough* | 351 | 15/5/33 | 22/8/34 | 28/6/35 |
| *Worden* | 352 | 29/12/32 | 27/10/34 | 1/3/35 |
| *Dale* | 353 | 10/2/34 | 23/1/35 | 19/7/35 |
| *Monaghan* | 354 | 21/11/33 | 9/1/35 | 30/8/35 |
| *Aylwin* | 355 | 23/9/33 | 10/7/34 | 1/5/35 |

# 155 FLUSH DECK DESTROYERS.

(Details on Following Pages).

| | | |
|---|---|---|
| 184 | Abbot | 1 |
| 211 | Alden | 2 |
| 258 | Aulick | 4 |
| 128 | Babbitt | 6 |
| 126 | Badger | 6 |
| 196 | Badger, G. E. | 1 |
| 269 | Bailey | 5 |
| 246 | Bainbridge | 6 |
| 267 | Ballard | 5 |
| 256 | Bancroft | 4 |
| 213 | Barker | 2 |
| 149 | Barney | 2 |
| 248 | Barry | 6 |
| 251 | Belknap | 4 |
| 153 | Bernadou | 2 |
| 151 | Biddle | 2 |
| 150 | Blakeley | 2 |
| 215 | Borie | 2 |
| 197 | Branch | 1 |
| 148 | Breckinridge | 2 |
| 232 | Brooks | 6 |
| 210 | Broome | 2 |
| 131 | Buchanan | 3 |
| 222 | Bulmer | 2 |
| 206 | Chandler | 2 |
| 106 | Chew | 10 |
| 241 | Childs | 6 |
| 140 | Claxton | 8 |
| 186 | Clemson | 1 |
| 155 | Cole | 2 |
| 85 | Colhoun | 7 |
| 72 | Conner | 2 |
| 167 | Cowell | 7 |
| 109 | Crane | 10 |
| 164 | Crosby | 7 |
| 134 | Crowninshield | 3 |
| 187 | Dahlgren | 1 |
| 199 | Dallas | 1 |
| 341 | Decatur | 8 |
| 116 | Dent | 2 |
| 157 | Dickerson | 6 |
| 117 | Dorsey | 2 |
| 152 | Du Pont | 2 |
| 219 | Edsall | 2 |
| 265 | Edwards | 5 |
| 216 | Edwards, John D. | 2 |
| 146 | Elliot | 2 |
| 154 | Ellis | 2 |
| 78 | Evans | 3 |
| 93 | Fairfax | 8 |
| 169 | Foote | 7 |
| 228 | Ford, John D. | 2 |
| 234 | Fox | 6 |
| 260 | Gillis | 4 |
| 233 | Gilmer | 6 |
| 247 | Goff | 6 |
| 188 | Goldsborough | 1 |
| 266 | Greene (ex-Anthony) | 5 |
| 145 | Greer | 2 |
| 82 | Gregory | 7 |
| 133 | Hale | 3 |
| 141 | Hamilton | 8 |
| 183 | Haraden | 12 |
| 231 | Hatfield | 6 |
| 160 | Herbert | 6 |
| 198 | Herndon | 1 |
| 178 | Hogan | 10 |
| 181 | Hopewell | 1 |
| 249 | Hopkins | 6 |
| 208 | Hovey | 2 |
| 179 | Howard | 10 |
| 236 | Humphreys | 6 |
| 194 | Hunt | 1 |
| 255 | Ingram, Osmond | 4 |
| 245 | James, Reuben | 6 |
| 130 | Jones, Jacob | 6 |
| 230 | Jones, Paul | 2 |
| 170 | Kalk (ex-Rodgers) | 7 |
| 235 | Kane | 6 |
| 138 | Kennison | 8 |
| 137 | Kilty | 8 |
| 242 | King | 6 |
| 263 | Laub | 5 |
| 250 | Lawrence | 6 |
| 118 | Lea | 2 |
| 158 | Leary | 6 |
| 336 | Litchfield | 8 |
| 79 | Little | 7 |
| 209 | Long | 2 |
| 175 | Mackenzie | 10 |
| 220 | MacLeish | 2 |
| 168 | Maddox | 7 |
| 74 | Manley | 3 |
| 191 | Mason | 1 |
| 253 | McCalla | 4 |
| 252 | McCook | 4 |
| 223 | McCormick | 2 |
| 237 | McFarland | 6 |
| 90 | McKean | 10 |
| 264 | McLanahan | 5 |
| 274 | Meade | 5 |
| 239 | Overton | 6 |
| 161 | Palmer | 7 |
| 218 | Parrott | 2 |
| 226 | Peary | 2 |
| 340 | Perry | 8 |
| 76 | Philip | 3 |
| 227 | Pillsbury | 2 |
| 225 | Pope | 2 |
| 113 | Rathburne | 2 |
| 89 | Ringgold | 10 |
| 88 | Robinson | 10 |
| 254 | Rodgers (ex-Kalk) | 4 |
| 147 | Roper | 2 |
| 243 | Sands | 6 |
| 190 | Satterlee | 1 |
| 159 | Schenck | 6 |
| 103 | Schley | 10 |
| 268 | Shubrick | 5 |
| 81 | Sigourney | 7 |
| 221 | Simpson | 2 |
| 207 | Southard | 2 |
| 180 | Stansbury | 10 |
| 224 | Stewart | 2 |
| 73 | Stockton | 2 |
| 83 | Stringham | 7 |
| 240 | Sturtevant | 6 |
| 273 | Swasey | 5 |
| 114 | Talbot | 2 |
| 156 | Talbott, J. Fred | 2 |
| 142 | Tarbell | 2 |
| 125 | Tattnall | 6 |
| 94 | Taylor | 8 |
| 162 | Thatcher | 7 |
| 182 | Thomas | 1 |
| 270 | Thornton | 5 |
| 135 | Tillman | 13 |
| 339 | Trever | 8 |
| 229 | Truxtun | 2 |
| 127 | Twiggs | 6 |
| 144 | Upshur | 2 |
| 193 | Upshur Abel. P. | 1 |
| 163 | Walker | 7 |
| 139 | Ward (ex-Cowell) | 8 |
| 132 | Ward, Aaron | 3 |
| 338 | Wasmuth | 8 |
| 115 | Waters | 2 |
| 257 | Welles | 4 |
| 217 | Whipple | 2 |
| 75 | Wickes | 3 |
| 108 | Williams | 10 |
| 244 | Williamson | 6 |
| 195 | Wood W. C. | 1 |
| 143 | Yarnall | 2 |
| 337 | Zane | 8 |

Numerals preceding name are the Official Number which is painted on the bows of each boat.

Number after name = Builder's Name (see list below).

**Builders:**

| | |
|---|---|
| 1 | Newport News S.B. Co. |
| 2 | Wm. Cramp & Sons. |
| 3 | Bath Iron Works. |
| 4 | Bethlehem S.B. Corpn., Quincy. |
| 5 | " " Squantum. |
| 6 | New York S.B. Corpn. |
| 7 | Bethlehem S.B. Corpn., Fore River. |
| 8 | Navy Yard, Mare Island. |
| 10 | Union Iron Works. |
| 12 | Seattle Con. and D.D. Co. |
| 13 | Navy Yard, Charleston. |

Churchill

134 – ~~[illegible]~~ ?

93 – Живучий

Richmond

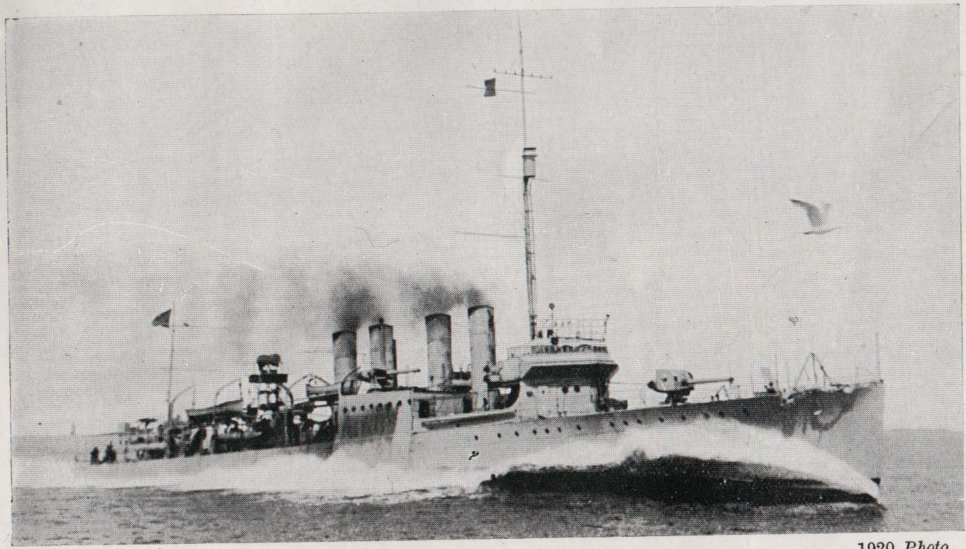
169 – Жгучий

153 Дерзкий!

168 Доблестный!

Достойный!

## 155 boats by various yards (Flush Deckers).



BROOKS. 1

1920 *Photo.*

1ST GROUP (5 ships):

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Brooks* | 11/6/18 | 24/4/19 | 18/6/20 |
| *Fox* | 25/6/18 | 12/6/19 | 17/5/20 |
| *Gilmer* | 25/6/18 | 24/5/19 | 30/4/20 |
| *Hatfield* | 10/6/18 | 17/3/19 | 16/4/20 |
| *Kane* | 3/7/18 | 12/8/19 | 11/6/20 |

Displacement: 1,190 tons, *standard*. Complement, 122. Dimensions: 310 (*w.l.*), 314 (*o.a.*) × 30 × 9¼ feet (*mean* draught), 10 feet (*max.*). Guns: **4**—5 inch, 51 cal., **1**—3 inch, 23 cal. AA. Tubes: **12**—21 inch (tripled). Machinery: Westinghouse geared turbines. 2 shafts. S.H.P. 26,000 = 35 kts. Boilers: 4 White-Forster. Total heating surface, 27,500 sq. ft. Oil fuel: 375 tons.

2ND GROUP (2 ships):

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Hovey* | 7/9/18 | 26/4/19 | 2/10/19 |
| *Long* | 23/9/18 | 26/4/19 | 20/10/19 |

Same as 1st Group, except **8**—4 inch, 50 cal. guns, in twin mountings. Parsons geared turbines.

3RD GROUP (41 ships):

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Alden* | 24/10/18 | 7/6/19 | 24/11/19 |
| *Bainbridge* | 27/5/19 | 12/6/20 | 9/2/21 |
| *Barker* | 30/4/19 | 11/9/19 | 27/12/19 |

3RD GROUP—*continued.*

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Barry* | 26/7/19 | 28/10/20 | 28/12/20 |
| *Borie* | 30/4/19 | 4/10/19 | 24/3/20 |
| *Broome* | 8/10/18 | 14/5/19 | 31/10/19 |
| *Bulmer* | 11/8/19 | 22/1/20 | 16/8/20 |
| *Chandler* | 19/8/18 | 19/3/19 | 5/9/19 |
| *Childs* | 19/3/19 | 15/9/20 | 22/10/20 |
| *Decatur* | 15/9/20 | 29/10/21 | 9/8/22 |
| *Edsall* | 15/9/19 | 29/7/20 | 26/11/20 |
| *John D. Edwards* | 21/5/19 | 18/10/19 | 6/4/20 |
| *John D. Ford* | 11/11/19 | 2/9/20 | 30/12/20 |
| *Goff* | 16/6/19 | 2/6/20 | 19/1/21 |
| *Hopkins* | 30/7/19 | 26/6/20 | 21/3/21 |
| *Humphreys* | 31/7/18 | 28/7/19 | 21/7/20 |
| *Rbn. James* | 2/4/19 | 4/10/19 | 24/9/20 |
| *Paul Jones* | 23/12/19 | 30/9/20 | 19/4/21 |
| *King* | 28/4/19 | 14/10/20 | 16/12/20 |
| *Lawrence* | 14/8/19 | 10/7/20 | 18/4/21 |
| *Litchfield* | 15/1/19 | 12/8/19 | 12/5/20 |
| *MacLeish* | 19/8/19 | 18/12/19 | 2/8/20 |
| *McCormick* | 11/8/19 | 14/2/20 | 30/8/20 |
| *McFarland* | 31/7/18 | 30/3/20 | 30/9/20 |
| *Overton* | 30/10/18 | 10/7/19 | 30/6/20 |
| *Parrott* | 23/7/19 | 25/11/19 | 11/5/20 |
| *Peary* | 9/9/19 | 6/4/20 | 22/10/20 |
| *Perry* | 15/9/20 | 29/10/21 | 7/8/22 |
| *Pillsbury* | 23/10/19 | 3/8/20 | 15/12/20 |
| *Pope* | 9/9/19 | 23/3/20 | 27/10/20 |
| *Sands* | 22/3/19 | 28/10/19 | 10/11/20 |
| *Simpson* | 9/10/19 | 28/4/20 | 3/11/20 |
| *Southard* | 18/8/18 | 31/3/19 | 24/9/19 |
| *Stewart* | 9/9/19 | 4/3/20 | 15/9/20 |
| *Sturtevant* | 23/11/18 | 29/7/20 | 21/9/20 |
| *Trever* | 12/8/19 | 15/9/20 | 3/8/22 |
| *Truxtun* | 3/12/19 | 28/9/20 | 16/2/21 |
| *Wasmuth* | 12/8/19 | 15/9/20 | 16/12/21 |

## Destroyers—*continued.*

3RD GROUP—*continued.*

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Whipple* | 12/6/19 | 6/11/19 | 23/4/20 |
| *Williamson* | 27/3/19 | 16/10/19 | 29/10/20 |
| *Zane* | 15/1/19 | 12/8/19 | 15/2/21 |

Same as 1st Group, except **4**—4 inch, 50 cal. guns. Parsons or Westinghouse geared turbines; Four White-Forster or Normand boilers. H.P. 24,200, 25,000 or 26,000 = 35 kts. T.H.S. 27,500 or 27,000 sq. ft.

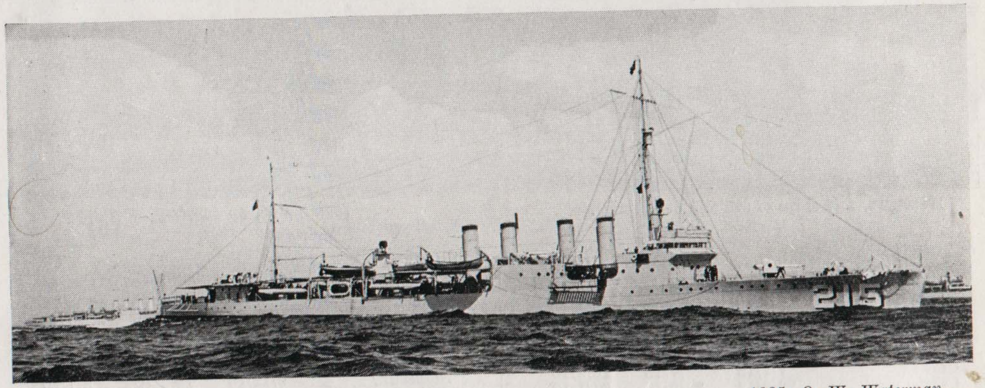
4TH GROUP (31 ships):

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Aulick* | 3/12/18 | 11/4/19 | 26/7/19 |
| *G. E. Badger* | 24/9/18 | 6/3/20 | 21/7/20 |
| *Bailey* | 3/6/18 | 5/2/19 | 27/6/19 |
| *Ballard* | 3/6/18 | 7/12/18 | 5/6/19 |
| *Bancroft* | 4/11/18 | 21/3/19 | 30/6/19 |
| *Belknap* | 31/7/18 | 14/1/19 | 28/4/19 |
| *Branch* | 25/10/18 | 19/4/19 | 3/4/20 |
| *Clemson* | 11/5/18 | 5/9/18 | 17/11/19 |
| *Dahlgren* | 8/6/18 | 20/11/18 | 6/1/20 |
| *Dallas* | 25/11/18 | 31/5/19 | 30/4/20 |
| *Edwards* | 20/4/18 | 10/10/18 | 24/4/19 |
| *Gillis* | 27/12/18 | 29/5/19 | 3/9/19 |
| *Goldsborough* | 8/6/18 | 20/11/18 | 26/1/20 |

4TH GROUP—*continued.*

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Greene* | 3/6/18 | 2/11/18 | 9/5/19 |
| *Herndon* | 25/11/18 | 31/5/19 | 17/4/20 |
| *Hunt* | 20/8/18 | 14/2/20 | 8/6/20 |
| *O. Ingram* | 15/10/18 | 28/2/19 | 27/6/19 |
| *Laub* | 20/4/18 | 25/8/18 | 17/3/19 |
| *Mason* | 10/7/18 | 8/3/19 | 28/2/20 |
| *McCalla* | 25/9/18 | 28/3/19 | 19/5/19 |
| *McCook* | 11/9/18 | 31/1/19 | 30/4/19 |
| *McLanahan* | 20/4/18 | 22/9/18 | 5/4/19 |
| *Meade* | 23/9/18 | 24/5/19 | 8/9/19 |
| *Rodgers* | 25/9/18 | 26/4/19 | 22/7/19 |
| *Satterlee* | 10/7/18 | 21/12/18 | 22/12/19 |
| *Shubrick* | 3/6/18 | 31/12/18 | 3/7/19 |
| *Swasey* | 27/8/18 | 7/5/19 | 31/7/19 |
| *Thornton* | 3/6/18 | 22/3/19 | 15/7/19 |
| *A. B. Upshur* | 20/8/18 | 14/2/20 | 21/5/20 |
| *Welles* | 13/11/18 | 8/5/19 | 2/9/19 |
| *W. C. Wood* | 24/9/18 | 6/3/20 | 25/6/20 |

Same as 3rd Group, except 311 feet water-line length. Curtis or Westinghouse geared turbines. Four White-Forster or Yarrow boilers. H.P. 25,000 or 27,000 = 35 kts. T.H.S. 27,500 or 27,540 sq. ft.



BORIE. 3

1935, *O. W. Waterman.*

5TH GROUP (42 ships):

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Babbitt* | 19/2/18 | 30/9/18 | 24/10/19 |
| *Badger* | 9/1/18 | 24/8/18 | 29/5/19 |
| *Barney* | 26/3/18 | 5/9/18 | 14/3/19 |
| *Bernadou* | 4/6/18 | 7/11/18 | 19/5/19 |
| *Biddle* | 22/4/18 | 3/10/18 | 22/4/19 |
| *Blakeley* | 26/3/18 | 19/9/18 | 8/5/19 |
| *Breckinridge* | 11/3/18 | 17/8/18 | 27/2/19 |
| *Buchanan* | 29/6/18 | 2/1/19 | 20/1/19 |
| *Claxton* | 25/4/18 | 15/1/19 | 13/9/19 |
| *Cole* | 25/6/18 | 11/1/19 | 19/6/19 |
| *Crowninshield* | 5/11/18 | 24/7/19 | 6/8/19 |
| *Dent* | 30/8/17 | 23/3/18 | 9/9/18 |
| *Dickerson* | 25/5/18 | 12/3/19 | 3/9/19 |
| *Dorsey* | 18/9/17 | 9/4/18 | 16/9/18 |
| *DuPont* | 2/5/18 | 22/10/18 | 30/4/19 |

5TH GROUP—*continued.*

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Elliot* | 23/2/18 | 4/7/18 | 25/1/19 |
| *Ellis* | 8/7/18 | 30/11/18 | 7/6/19 |
| *Evans* | 28/12/17 | 30/10/18 | 11/11/18 |
| *Fairfax* | 10/7/17 | 15/12/17 | 6/4/18 |
| *Greer* | 24/2/18 | 1/8/18 | 31/12/18 |
| *Hale* | 7/10/18 | 29/5/19 | 12/6/19 |
| *Hamilton* | 8/6/18 | 15/1/19 | 7/11/19 |
| *Herbert* | 9/4/18 | 8/5/19 | 21/11/19 |
| *Jacob Jones* | 21/2/18 | 20/11/18 | 20/10/19 |
| *Lea* | 18/9/17 | 29/4/18 | 30/9/18 |
| *Leary* | 6/3/18 | 18/12/18 | 5/12/19 |
| *Philip* | 1/9/17 | 25/7/18 | 24/8/18 |
| *Rathburne* | 12/7/17 | 27/12/17 | 24/6/18 |
| *Roper* | 19/3/18 | 17/8/18 | 15/2/19 |
| *Schenck* | 26/3/18 | 23/4/19 | 30/10/19 |

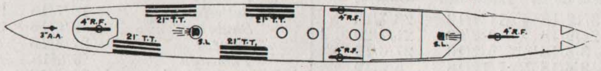
## Destroyers—*continued.*

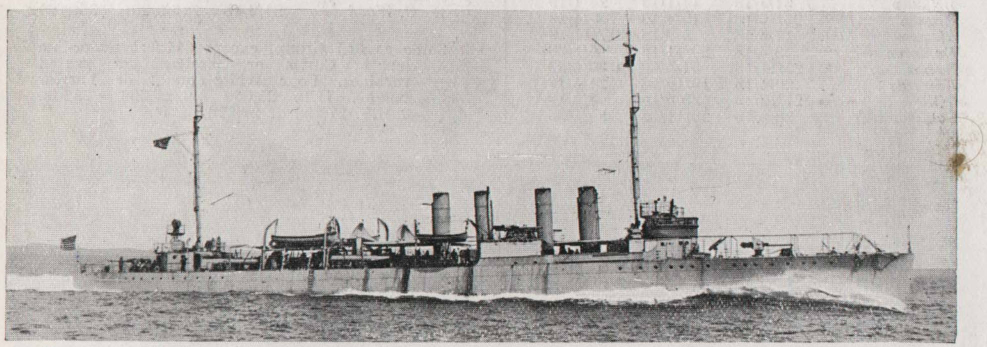
5th Group—*continued.*

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Talbot* | 12/7/17 | 20/2/18 | 20/7/18 |
| *J. Fred Talbott* | 8/7/18 | 14/12/18 | 30/6/19 |
| *Tarbell* | 31/12/17 | 28/5/18 | 27/11/18 |
| *Tattnall* | 1/12/17 | 5/9/18 | 26/6/19 |
| *Taylor* | 15/10/17 | 14/2/18 | 1/6/18 |
| *Tillman* | 29/7/18 | 7/7/19 | 30/4/21 |
| *Twiggs* | 23/1/18 | 28/9/18 | 28/7/19 |
| *Upshur* | 19/2/18 | 4/7/18 | 23/12/18 |
| *Aaron Ward* | 1/8/18 | 10/4/19 | 21/4/19 |
| *Waters* | 26/7/17 | 9/3/18 | 8/8/18 |
| *Wickes* | 26/6/17 | 25/6/18 | 31/7/18 |
| *Yarnall* | 12/2/18 | 19/6/18 | 29/11/18 |

Displacement: 1,090 tons *standard*. Dimensions: 309 (*w.l.*), 314⅓ (*o.a.*) × 30½ × 8⅔ feet (*mean* draught). Armament as Groups 3 and 4. Parsons geared turbines; Four White-Forster, Normand or Thornycroft boilers. H.P. 24,200, 26,000 or 27,000 = 35 kts. T.H.S.: 27,048, 27,000 or 27,500 sq. ft.

HOVEY & LONG HAVE TWIN 4 INCH MOUNTS.
BROOKS CLASS HAVE 5 INCH GUNS In each case after mount is placed on fantail.





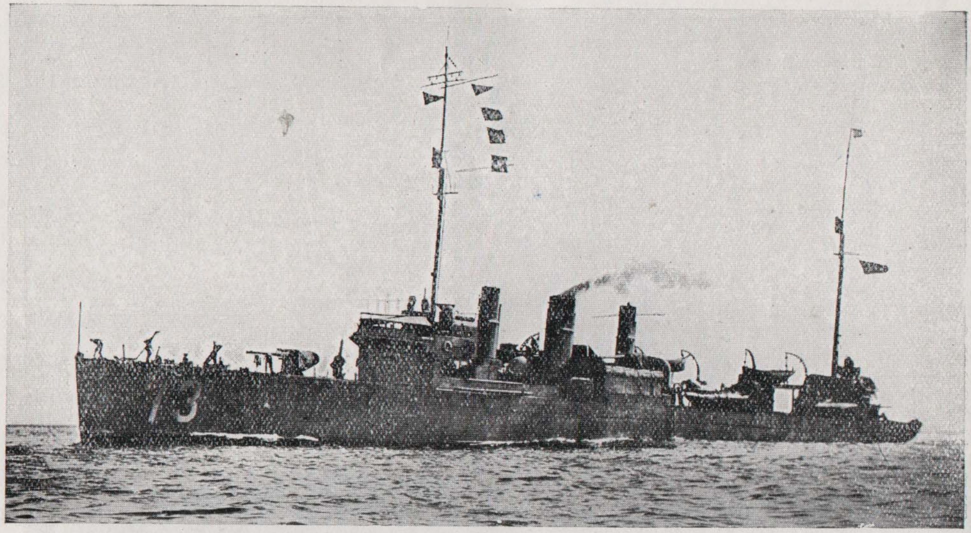
Herbert, and ships of 5th and 6th groups. 1920 *Photo, by courtesy of Builders.*

6th Group (31 ships):

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Abbot* | 5/4/18 | 4/7/18 | 18/7/19 |
| *Chew* | 2/1/18 | 26/5/18 | 12/12/18 |
| *Colhoun* | 19/9/17 | 21/2/18 | 12/6/18 |
| *Cowell* | 15/7/18 | 23/11/18 | 17/3/19 |
| *Crane* | 7/1/18 | 4/7/18 | 18/4/19 |
| *Crosby* | 23/6/18 | 28/9/18 | 24/1/19 |
| *Foote* | 7/8/18 | 14/12/18 | 21/3/19 |
| *Gregory* | 25/8/17 | 27/1/18 | 31/5/18 |
| *Haraden* | 30/3/18 | 4/7/19 | 6/6/19 |
| *Hogan* | 25/11/18 | 12/4/18 | 1/10/19 |
| *Hopewell* | 19/1/18 | 8/6/18 | 21/3/19 |
| *Howard* | 9/12/18 | 26/4/19 | 28/1/20 |
| *Kalk* | 17/8/18 | 21/12/18 | 29/3/19 |
| *Kennison* | 14/2/18 | 8/6/18 | 2/4/19 |
| *Kilty* | 15/12/17 | 25/4/18 | 17/12/18 |
| *Little* | 18/6/17 | 11/11/17 | 5/4/18 |
| *Mackenzie* | 4/7/18 | 29/9/18 | 25/7/19 |
| *Maddox* | 20/7/18 | 27/10/18 | 10/3/19 |
| *McKean* | 12/2/18 | 4/7/18 | 25/2/19 |
| *Palmer* | 29/5/18 | 18/8/18 | 22/11/18 |
| *Ringgold* | 20/10/17 | 14/4/18 | 14/11/18 |
| *Robinson* | 31/10/17 | 28/3/18 | 19/10/18 |
| *Schley* | 29/10/17 | 28/3/18 | 20/9/18 |
| *Sigourney* | 25/8/17 | 16/12/17 | 14/5/18 |
| *Stansbury* | 9/12/18 | 16/5/19 | 8/1/20 |
| *Stringham* | 19/9/17 | 30/3/18 | 2/7/18 |
| *Thatcher* | 8/6/18 | 31/8/18 | 14/1/19 |
| *Thomas* | 23/3/18 | 4/7/18 | 25/4/19 |
| *Walker* | 19/6/18 | 14/9/18 | 31/1/19 |
| *Ward* | 15/5/18 | 1/6/18 | 24/7/18 |
| *Williams* | 25/3/18 | 4/7/18 | 1/3/19 |

Displacement: 1,060 tons *standard*. Dimensions: 309 (*w.l.*), 314⅓ (*o.a.*) × 30½ × 8½ feet (*mean* draught). Armament as in 3rd, 4th and 5th Groups. Curtis, Parsons or G.E. Curtis turbines. Four Thornycroft, Yarrow or Normand boilers. H.P. 24,200, 25,000 or 27,000 = 35 kts. T.H.S.: 27,000, 27,540 or 28,000 sq. ft. Oil fuel: 300 tons.

## Destroyers—*continued.*



Stockton (Conner similar). Manley has 4 funnels. 1919 *Photo.*

7th Group (3 Ships):

| *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|
| *Conner* | 16/10/16 | 21/8/17 | 12/1/18 |
| *Manley* | 22/8/16 | 23/8/17 | 15/10/17 |
| *Stockton* | 16/10/16 | 17/7/17 | 26/11/17 |

7th Group—*continued.*

Displacement: 1,020 tons *standard*. Dimensions: 308 (*w.l.*), 315½ (*o.a.*) × 30⅔ × 7½ feet (*mean* draught). Armament as in 3rd, 4th, 5th, and 6th Groups, except *Gwin* has 2—3 inch AA. guns instead of 1. Parsons or G.E. Curtis turbines. Four Thornycroft, Yarrow or Normand boilers. H.P. 18,000 to 21,000. = 35 kts. T.H.S.: 21,500 to 22,520 sq. ft. Oil fuel: 290 tons.

## 8 Light Minelayers

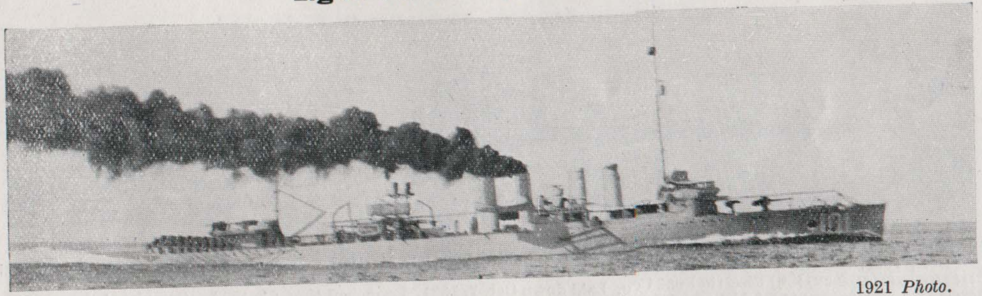
3 *Bath Iron Works*: ***Preble, Pruitt, Sicard.*** 1 *Cramp*: ***Tracy.***

Displacement: 1,190 tons, *standard*. Dimensions: 310 (*w.l.*), 314 (*o.a.*) × 30 × 9¼ feet (*mean* draught). Guns: 4—4 inch, 50 cal., 1—3 inch, 23 cal., AA. Torpedo tubes removed. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 25,200 = 35 kts., except *Tracy*, 27,000 = 35 kts. Boilers: 4 Normand (except *Tracy*, 4 White-Forster). Total heating surface, 27,000 sq. feet (except *Tracy*, 27,500 sq. feet). Oil fuel: 375 tons.

*Note.*—Converted to present service from destroyers in 1937.

| *Name* | *No.* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|
| *Preble* | DM 20 | 12/4/19 | 8/3/20 | 19/3/20 |
| *Pruitt* | DM 22 | 25/6/19 | 2/8/20 | 2/9/20 |
| *Sicard* | DM 21 | 18/6/19 | 20/4/20 | 1/5/20 |
| *Tracy* | DM 23 | 3/4/19 | 12/8/19 | 9/3/20 |

## Light Mine Layers—*continued.*



1921 *Photo.*

4 *Newport News S.B. Co.:* **Ramsay, Gamble, Breese, Montgomery.**

Ex-FlushDeck Destroyers, converted 1920–21. Identification Numbers : *Breese, DM* 18 ; *Gamble, DM* 15 ; *Montgomery, DM* 17 ; *Ramsay, DM* 16.

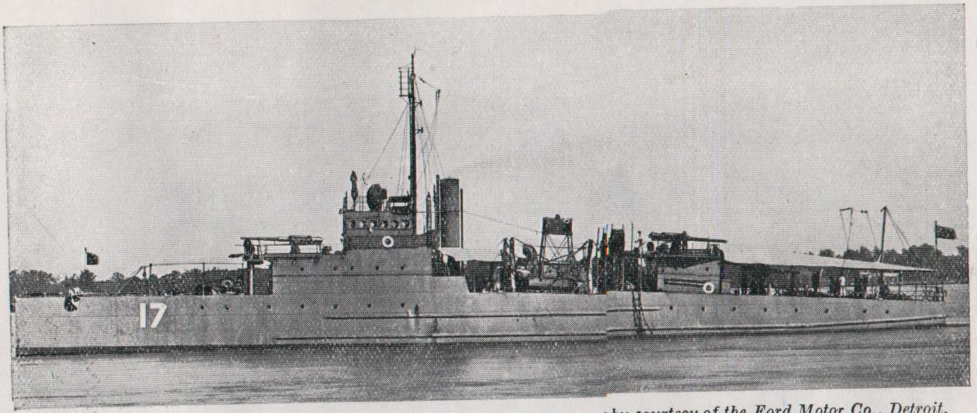
Displacements : 1,160 tons *standard* (1,284 *full load*). Dimensions : 309 (*w.l.*), 314 ft. 4 in. (*o.a.*) × 30 ft. 6 in. × 9 ft. (*mean* draught), 9 ft. 10 in. (*full load* draught aft).

Guns : **4**—4 inch, 50 cal., **1**—3 inch, 23 cal. AA. Torpedo tubes : Removed on conversion.

Mines carried : Unofficially reported to carry 80 Mark IV mines, for which magazines, deck rails and chutes have been fitted.

Machinery (*about* 486 tons) : Curtis geared turbines. 4 Yarrow or Thornycroft boilers—27,540 sq. ft. heating surface. 2 screws. Designed S.H.P. : 27,000 = 35 kts. Fuel : 283 tons oil. Complement : 128.

## Patrol Vessels—Submarine Chasers.



Eagle 17.

1919 *Photo, by courtesy of the Ford Motor Co., Detroit.*

### 17 "EAGLE BOATS":—

**Nos. 19, 26, 27, 32, 35, 38, 39, 44, 48, 51, 52, 55, 56, 57, 58, 59, 60.** Launched 1918–19, by Ford organisation.

Displacement : *standard*, 430 tons, *full load* 615 tons. Complement : 61. Dimensions : Length, 200 feet (*p.p.* and *o.a.*). Beam, 25½ feet. *Mean* draught, 7¼ feet ; *full load*, 8½ feet. Armament : 2—4 inch, 50 cal. ; 1—3 inch AA., 2 M.G. Carry **12** depth charges. Machinery : Poole geared Turbine. 2 Bureau Express boilers. 1 screw. Designed H.P. : 2,500 = 18 kts. Fuel : 105 tons coal + 45 tons Oil. Endurance : 3,500 miles at 10 kts.

## Submarine Chasers—*continued.*

SC. 200.

1919 *Photo.*

14—110-ft. boats : **SC 64, 102, 103, 185, 192, 229, 231, 330, 412, 428, 432, 433, 437, 440.** Built 1917–19 by various Navy Yards and private contractors. Displacement : 77 tons *normal*, 85 tons *full load*. Wooden hulls. Length : 105 feet (*p.p.*), 110 feet (*o.a.*). Beam : 14 ft. 9 in. *Mean* hull draught, 5 ft. 6 in., *full load* aft, 5 ft. 8 in. Machinery : 3 sets of 220 B.H.P. Standard petrol motors = 17 kts. 2,400 gallons Petrol = 900 miles at 10 kts. Complement : 26. Have small radius W/T. Armaments : Majority have **1**—3 inch, 23 cal., and **2** Colt M.G. Carry depth charges.

## **84** + *16 building* Submarines.

*Note.*—All U.S. Submarines are painted black.

## Fleet Submarines—Cruiser Type.

### **10** Sargo Class.

5 *Electric Boat Co.:* **Sargo, Saury, Seadragon, Sealion, Spearfish.**
4 *Portsmouth Navy Yard:* **Sculpin, Searaven, Seawolf, Squalus.**
1 *Mare Island Navy Yard:* **Swordfish.**

Displacement : 1,450/—— tons. Complement : 55. Dimensions : 300 (*w.l.*) × 27 × 13¾ feet (*mean*). Guns : 1—3 inch AA. Tubes : **8**—21 inch.

| *Name* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|
| *Sargo* | 12/5/37 | | |
| *Saury* | 28/6/37 | | ✓ |
| *Spearfish* | 9/9/37 | | |
| *Seadragon* | | | |
| *Sealion* | | | |

| *Name* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|
| *Sculpus* | 10/9/37 | | |
| *Squalus* | | | ✓ |
| *Searaven* | | | |
| *Seawolf* | | | |
| *Swordfish* | 27/10/37 | | |

### **6** Salmon Class.

3 *Electric Boat Co.:* **Salmon, Seal, Skipjack.**
2 *Portsmouth Navy Yard:* **Snapper, Stingray.**
1 *Mare Island Navy Yard:* **Sturgeon.**

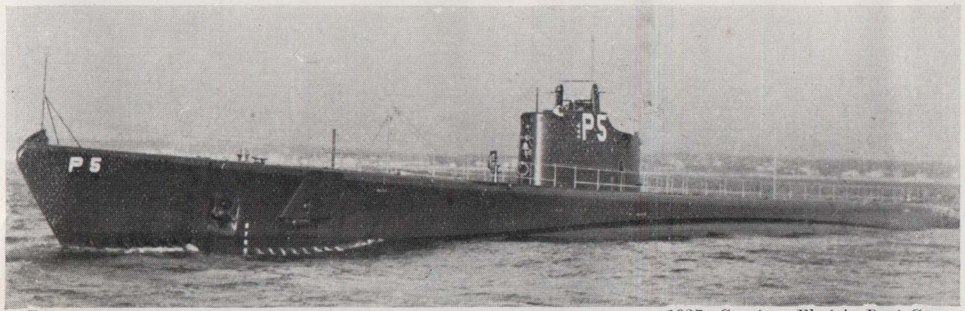
Displacement : 1,450 tons. Dimensions : 298 (*w.l.*) × 26 × 14¼ feet (*mean*). Guns : **1**—3 inch AA. Tubes : **8**—21 inc

| *Name* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|
| *Salmon* | 15/4/36 | 12/6/37 | |
| *Seal* | 25/5/36 | 25/8/37 | ✓ |
| *Skipjack* | 22/7/36 | 23/10/37 | |

| *Name* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|
| *Snapper* | 23/7/36 | 24/8/37 | ✓ |
| *Stingray* | 1/10/36 | 6/10/37 | |
| *Sturgeon* | 27/10/36 | | |

## Fleet Submarines—Cruiser Type. *(continued.)*

### 6 Perch Class.



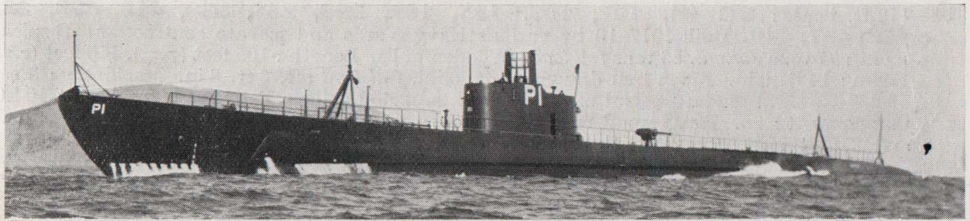
PERCH. 1937, *Courtesy Electric Boat Co.*

3 *Electric Boat Co.:* **Perch, Pickerel, Permit** (ex-*Pinna*).
2 *Portsmouth Navy Yard:* **Plunger, Pollack,** 1 *Mare Island Yard:* **Pompano.**

Displacement: 1,330/— tons. Complement: 50. Dimensions: 290 (*w.l.*) × 25 × 13$\frac{5}{8}$ feet (*mean* draught). Guns: **1**—3 inch AA. Tubes: **6**—21 inch. Winton Diesels. Cost to average $2,400,000 each.

| *Name* | *Laid down* | *Launched* | *Completed* | *Name* | *Laid down* | *Launched* | *Completed* |
|---|---|---|---|---|---|---|---|
| *Perch* | 25/2/35 | 9/5/36 | 19/11/36 | *Plunger* | 17/7/35 | 8/7/36 | 31/3/37 |
| *Pickerel* | 25/3/35 | 7/7/36 | 26/1/37 | *Pollack* | 1/10/35 | 15/9/36 | 28/4/37 |
| *Permit* | 6/6/35 | 5/10/36 | 17/3/37 | *Pompano* | 14/1/36 | 11/3/37 | 1/11/37 |

### 4 Pike Class.

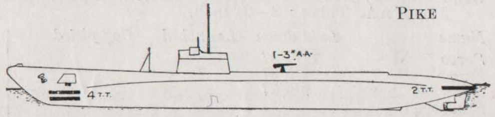


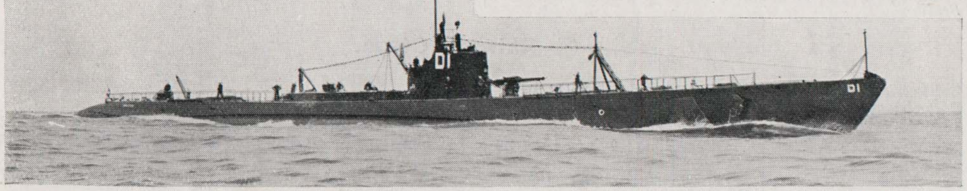
PORPOISE. 1937, *O. W. Waterman.*

2 *Portsmouth Navy Yard:* **Pike, Porpoise,.**
Displacement: 1,310/— tons. Dimensions: 283 (*w.l.*), 301 (*o.a.*) × 25 × 13 feet (*mean*). Winton Diesels.
2 *Electric Boat Co.:* **Shark, Tarpon.**
Displacement: 1,315/— tons. Dimensions: 287 (*w.l.*), 298 (*o.a.*) × 25 × 13$\frac{1}{3}$ feet (*mean*). Fairbanks-Morse Diesels, with electric drive.
Both types: Complement: 50. Guns: **1**—3 inch AA. Tubes: **6**—21 inch. Speed reported to exceed 20 kts.

| *Name* | *Laid down* | *Launched* | *Compl.* | *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|---|---|---|---|
| *Porpoise* | 27/10/33 | 20/6/35 | 15/1/36 | *Shark* | 24/10/33 | 21/5/35 | 25/1/36 |
| *Pike* | 20/12/33 | 12/9/35 | 17/4/36 | *Tarpon* | 22/12/33 | 4/9/35 | 12/3/36 |

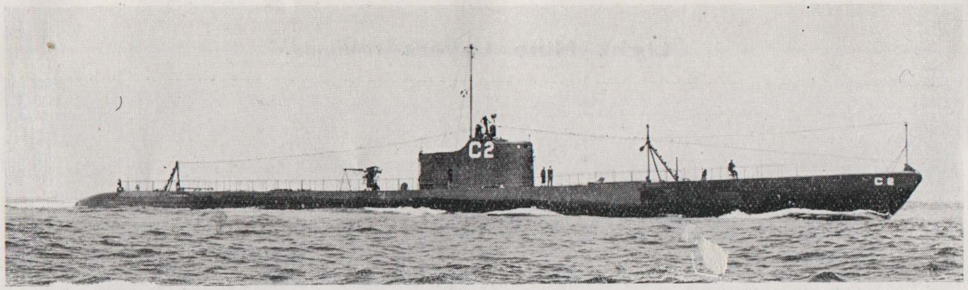
PIKE





DOLPHIN. 1935, *O. W. Waterman.*

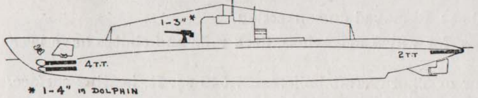
**Dolphin** (***D.1*** ex-*V*.7) Portsmouth Navy Yard. Laid down June 14, 1930. Launched March 8, 1932. Completed June, 1932.
Displacement: 1,540/2,215 tons. Complement, 63. Dimensions: 307 (*w.l.*), 319 (*o.a.*) × 27$\frac{7}{8}$ ×13 feet. M.A.N. Diesels, H.P. 4,200 =17 kts. *surface.* Electric motors, H.P. 875 = 8 kts. *submerged.* Guns: **1**—4 inch, A.A., Tubes: **6**—21 inch + 3 Torpedoes stowed externally.

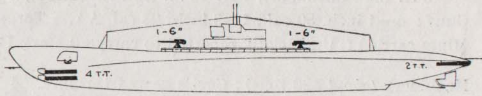


CUTTLEFISH. 1935, *O. W. Waterman.*

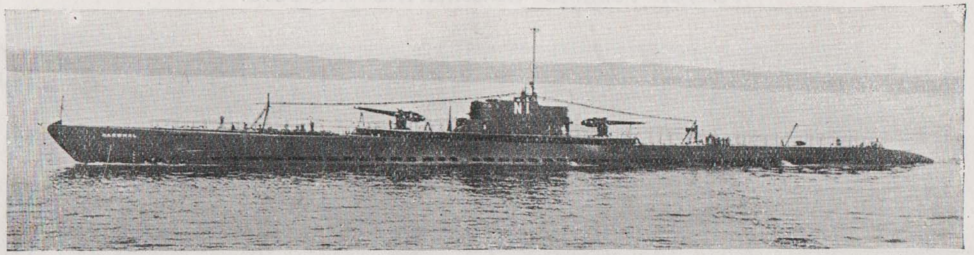
**Cachalot** (***C.1*** ex-*V*.8) Portsmouth Navy Yard. Laid down Oct. 21, 1931. Launched Oct. 19, 1933. Completed Dec., 1933.

**Cuttlefish** (***C.2*** ex-*V*.9) Electric Boat Co. Laid down Oct. 7, 1931. Launched Nov. 21, 1933. Completed, June, 1934.
Respective displacements: 1,110 and 1,120/1,650 tons. Complement, 45. Dimensions: 260 (*w.l.*), 271$\frac{1}{5}$ (*o.a.*) × 24$\frac{3}{4}$ × 12$\frac{5}{6}$ feet (*Cachalot*); 25 × 12$\frac{2}{3}$ (*Cuttlefish*). Machinery: 2 sets M.A.N. Diesels. H.P. 3,100/800 = 17/9 kts. Armament: **1**—3 inch AA. Tubes: **6**—21 inch. All-welded construction. Guns mounted abaft C.T. No external torpedo stowage.
*Note.*—Owing to design of original engines (with direct drive) having proved unsatisfactory, *Cachalot* and *Cuttlefish* are being given new machinery under 1936 Programme.

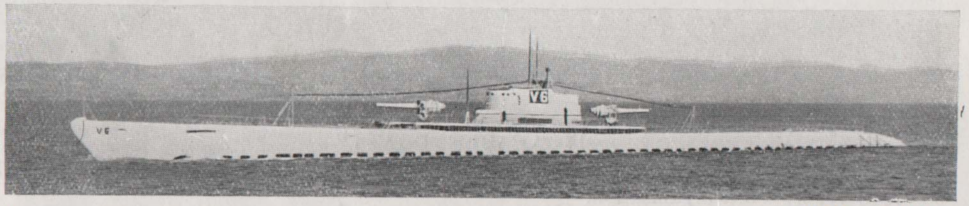




C. and D. type. NARWHAL type.



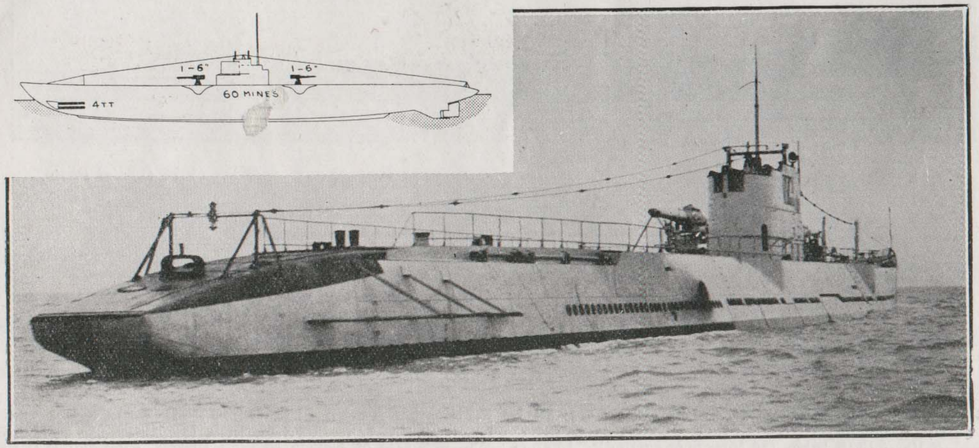
NARWHAL. 1934 *Photo.*



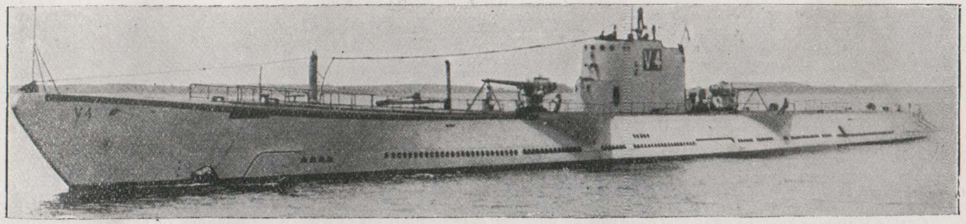
NAUTILUS 1931 *Official Photo.*

**Narwhal** (***N.1*** ex-*V*.5) (Dec. 17, 1929), **Nautilus** (***N.2*** ex-*V*.6) (March 15, 1930). Laid down at Portsmouth and Mare Island Navy Yards, respectively, May 10 and August 2, 1927. Machinery for both vessels built at New York Navy Yard. Displacement: 2,730/3,960 tons. Dimensions: 371 (*o.a.*), 349 (*w.l.*) × 33$\frac{1}{4}$ × 15$\frac{1}{3}$ feet (*mean*). Armament: **2**—6 inch, **6**—21 inch tubes. M.A.N. Diesels, H.P. 5,450 = 17 kts. *surface.* Westinghouse electric motors, H.P. 1,270 = 8·5 kts. *submerged.* Complement, 88. Estimated cost: Hull and machinery, $5,350,000 armament, $1,020,000. Authorised 1916 as Nos. 167–168. Completed in July and Oct., 1930, respectively.
*Note.*—Also carry eight external Torpedo Stowage Tubes, two each side fore and aft under the half-deck amidships.

## Fleet Submarines—Minelaying Type.



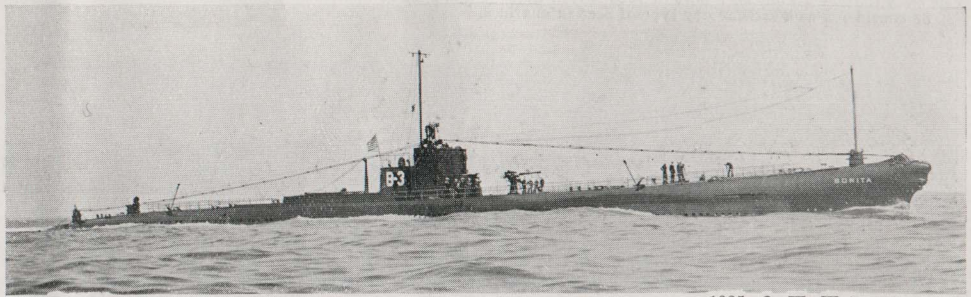
1928 *Official Photo.*



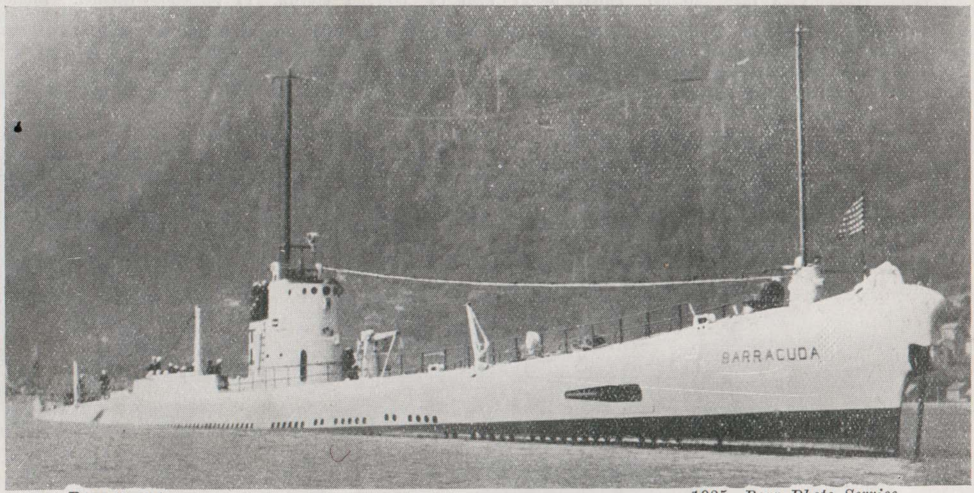
1929 *Official Photo.*

***Argonaut* (*A.1*** ex-*V*.4) (Portsmouth Navy Yard, Nov. 10th, 1927). Machinery by Brooklyn Navy Yd. Displacement: 2,710/4,080 tons. Dimensions: 358 (*w.l.*), 381 (*o.a.*) × 33⅘ × 15⅓ feet. Armament: **2**—6 inch guns, **4**—21 inch tubes, **60** mines. Diesels of 3,175 S.H.P. Speed 14·6/8 kts. Complement, 89. Is an improved edition of *V*.1 type in other respects. Estimated cost: Hull and machinery $5,300,000: armament, etc., $850,000. Authorised 1916, as No. 166, laid down May 1, 1925, and completed May 28, 1928.

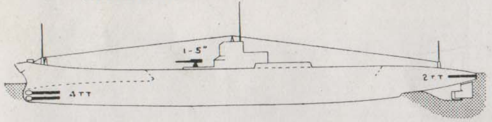
## Fleet Submarines.



BONITA. 1935, *O. W. Waterman.*



BARRACUDA. 1935, *Bear Photo Service.*

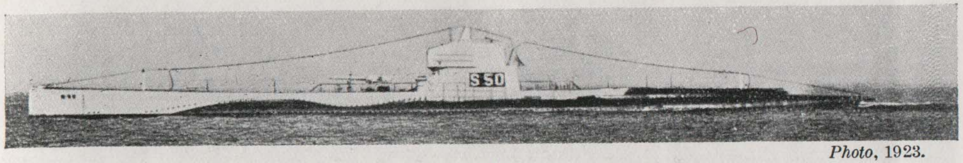


3 *Bureau* design: ***Barracuda*** (ex-*V*.1), ***Bass*** (ex-*V*.2), ***Bonita*** (ex-*V*.3). Built at Portsmouth Navy Yard. Displacement: 2,000/2,506 tons. Complement, 75. Dimensions: 326 (*w.l.*), 341½ (*o.a.*) × 27 × 14½ feet. Guns: **1**—3 inch AA. Tubes: **6**—21 inch. 16 torpedoes carried. Machinery: 2 sets Busch-Sulzer Diesels aft for main drive, H.P. 6,700 = 18·75 kts. on *surface*. Also 2 sets M.A.N. auxiliary Diesels forward driving generators supplying current to electric motors, H.P. 1,200 = 8 kts. *submerged*. Latter combination can be used for cruising on surface with electric drive. Radius of action: 12,000 miles.

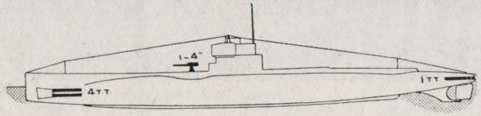
| *Name* | *Laid down* | *Launched* | *Compl.* | *Name* | *Laid down* | *Launched* | *Compl.* |
|---|---|---|---|---|---|---|---|
| *Barracuda* | 20/10/21 | 17/7/24 | 1/11/24 | *Bonita* | 16/11/21 | 9/6/25 | 17/6/26 |
| *Bass* | 20/10/21 | 27/12/24 | 26/9/25 | | | | |

## Fleet Submarines—*continued.*

*Note on S Class.*—An official report in 1925 stated that "experience in manœuvres indicates that these vessels cannot be considered as a satisfactory type of fleet submarines."

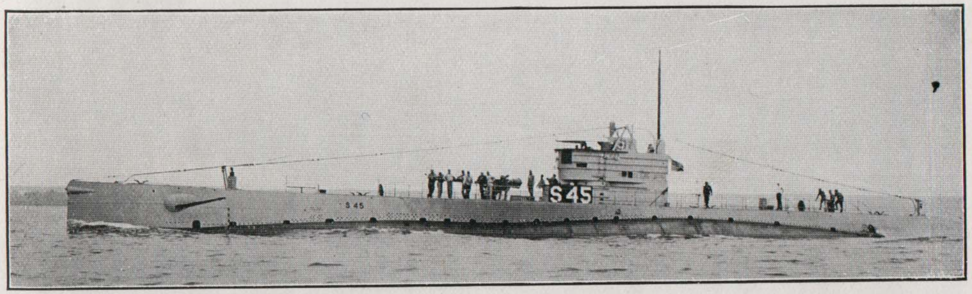


*Photo*, 1923.

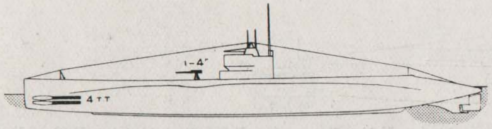


1 *Bureau* design : **S 48** (1921). By Lake T. B. Co. 1000/1458 tons. Dimensions: 266 (*w.l.*), 267 (*o.a.*) $21\frac{5}{6}$ × $13\frac{1}{2}$ feet. Guns: 1—4 inch, 50 cal. Tubes: **5**—21 inch (4 bow, 1 stern). 14 torpedoes carried. Engines 2 sets M.A.N. (N.Y.) 4 cycle 6 cyl. = total B.H.P. 2000. Motors: 2 sets each 750 h.p. Speed 14·5/11 kts. Crash dive in 60 secs. *Max.* dive limit: 200 feet. Divided into 6 watertight compartments. Double hull amidships, single hull at ends. 3 periscopes. Oil: 23,411 gallons *normal*, 44,305 *max.* Rad: 8,000 at 10 kts. Authorised 1916. Complement: 38.

*Note.*—*S 48* is stated to have been re-engined in 1929 with two new motors of 1000 H.P. each, oil storage being increased at same time.



S 45. 1926 *Official Photo.*

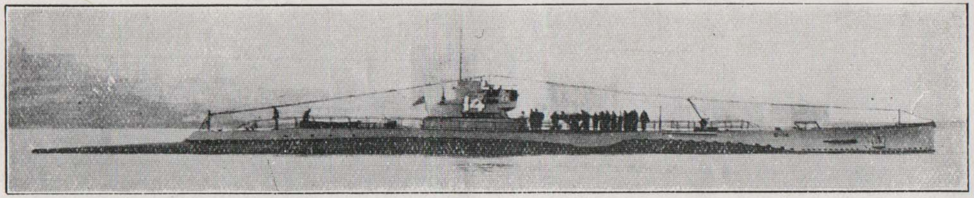


6 *Electric Boat Co.* design: ***S 42—S47*** (1923–24). 850/1,126 tons. All contracted for by Electric Boat Co.; hulls sub-contracted for by Bethlehem S.B. Co., Quincy. Authorised 1916–18. Displacement: 850/1,126 tons. Dimensions: $225\frac{1}{4}$ × $20\frac{2}{3}$ × 15 feet. Guns: **1**—4 inch, 50 cal. Tubes: **4**—21 inch. **12** Torpedoes carried. Engines: Two sets 600 B.H.P., 8 cylinder, 4 cycle Nelseco. Motors: 2 sets each 750 H.P. Elect. Dy. Co. Speed: 14·5/11 kts. Oil: 11,463—46,363 gallons. Complement: 38.

24 *Electric Boat Co.* design: ***S 1, S18*** (1918), ***S 20—4*** (1918–22). All contracted for by Electric Boat Co., and sub-contracted for as follows: *S*1 by Fore River S.B. Co., *S* 18—*S* 29 by Bethlehem S.B. Co., Quincy, *S* 30—*S* 41 by Bethlehem S.B. Co., San Francisco. 800/1,062 tons. Dimensions: $219\frac{1}{4}$ × $20\frac{2}{3}$ × 15 feet. 2 sets of 600 B.H.P. Nelseco Diesel engines. Motors: 2 sets 750 H.P. Ridgeway or Electric Dynamic Co. (*S* 1). Oil: 11,511/41,921 gallons. Have large radius of action *on surface.* Armament: **1**—4 inch gun and **4**—21 inch bow tubes (**12** torpedoes carried). Authorised: *S* 1 (1916, as No. 105), *S* 18—21 (1916–17 as Nos. 123—126), *S* 22—41 (1916–17, as Nos. 127—146). *S* 1 experimentally fitted, 1923 to carry a small seaplane in a cylindrical tank abaft C.T.

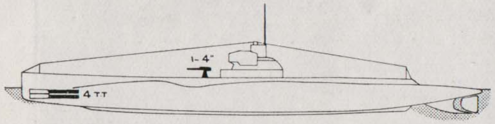
*Note.*—*S* 30 built at expense of Phillippines Government. *S* 19 scrapped, 1937.

## Fleet Submarines—*continued.*

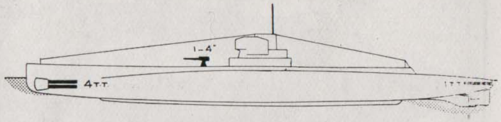


S 14. 1929 *Official Photo.*

S 14–17.



S 11–13.

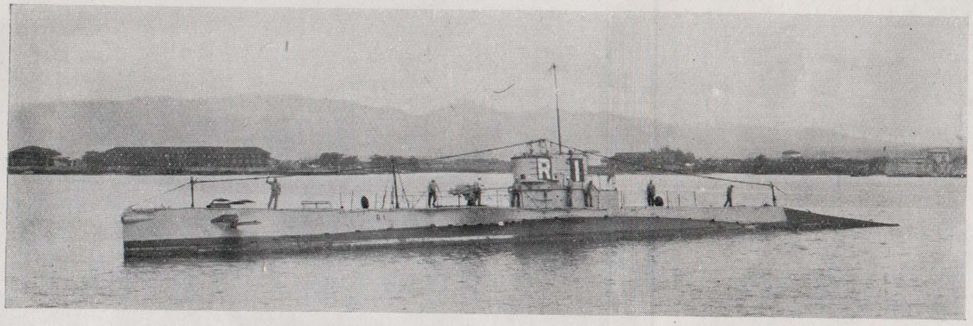


3 "*Bureau design*" boats: ***S11—13*** (1919–21); all by Portsmouth Ny Yd. Dimensions: 231 × $21\frac{5}{6}$ × $13\frac{1}{12}$ feet. Displacement: 790/1,092 tons. Guns: **1**—4 inch, 50 cal. Tubes: **4**—bow, 21 inch (**12** torpedoes carried). *S* 10—*S*13, **5** tubes (**14** torpedoes carried). Engines: *S* 3—9, 2 sets of 4-cycle Nelseco Diesels, each 700 B.H.P. (8 cyl.) *S* 10—13, 2 sets of 4-cycle "Bureau Design" M.A.N. (6 cyl.) type, each 1000 B.H.P. Motors: 2 sets 600 H.P. Westinghouse. Oil: 19,271/36,950 gallons. Speed, 15/10·5 kts. Completed 1919–23. *S* 4 sunk by collision with Coast Guard Destroyer, *Paulding*, on December 17, 1927; salved and brought in to port March 1928. After being used for some time as a special vessel for experimental purposes, she was discarded and scuttled off Hawaii in 1936. Other numbers scrapped.

4 *Bureau* design: ***S14—S 17*** (1919—20). All by Lake T.B. Co. Dimensions: 231 × $21\frac{5}{6}$ × 13 feet = 790/1092 tons. Guns: **1**—4 inch, 50 cal. Tubes: **4**—21 inch (**12** torpedoes carried). Engines: 2 sets M.A.N (N.Y.) 4 cycle 6 cyl. = B.H.P. 2,000. Motors: **2** sets each 600 H.P. Westinghouse. Speed, 14/12·25 kts. Complement, 38. Oil, 19,271/36,950 gallons.

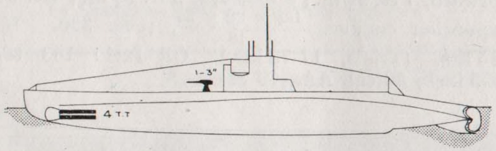
*General Note to all "S" boats.*—Special attention given to constructional strength against depth charge attack. *S.37* was immersed to a depth of 208 feet for 65 minutes without inconvenience. *S 1—4*, *S 6—8* *S 14—35*, all have Cutler-Hammer system of electric control. *S 9—13*, *S 36—51*, all fitted with Westinghousr or G. E. Co. pneumatic controllers, considered to be a decided improvement.

## Submarines.

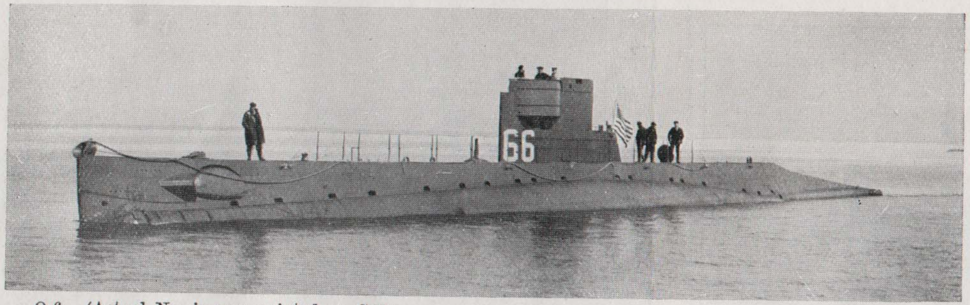


*Official, added* 1935.

19 *Electric Boat Co.* design: ***R1—7, 9—20*** (1917–19). All contracted for by Electric Boat Co. and sub-contracts assigned as follows: *R* 1—7, 9—14, by Fore River S.B. Co., *R* 15—20 by Union I.W. San Francisco. Dimensions: 186 × 18 × 14½ feet. 530/680 tons. **1**—3 inch, 50 cal. gun. **4** torpedo tubes (8 torpedoes carried). Engines: 2 sets of 440 B.H.P. (400 r.p.m.) 6-cyl. 4-cycle Nelseco Diesel. Fuel: 7,691/18,880 gallons. Motors: 2—467 H.P. Electric Dynamic Co., with Cutler-Hammer Co. magnetic controllers. Batteries: Electric Storage Co. Type 31-WLL. Authorised 1916 as Nos. 78—97. Completed 1918–19.



O 1—10. R 1—20.



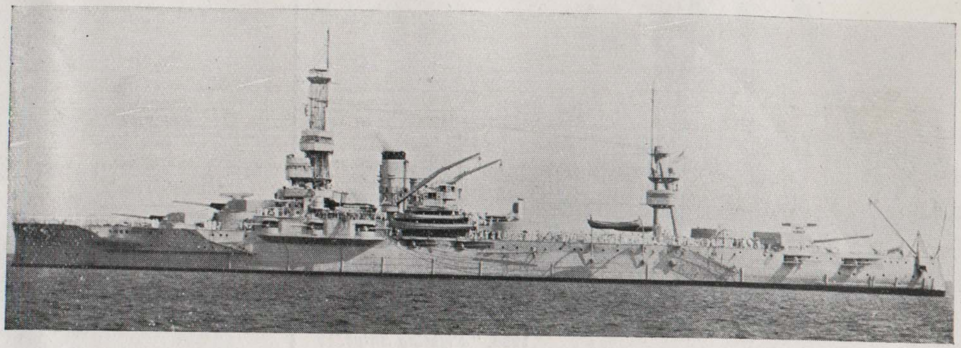
O 6. (Actual No. is now painted on C.T.)

1920 *Photo.*

8 *Electric Boat Co.* design: ***O 2—O 4*** and ***O 6—O 10*** (1917–18), viz., *O* 1 by Portsmouth N.Y.; *O* 2 by Puget Sound Navy Yard; *O* 3, *O* 4 and *O* 6—*O* 10 contracted for by Electric Boat Co. and sub-contracted for by Fore River Co. Dimensions: 172⅓ × 18 × 14½ feet. 480/624 tons. **1**—3 inch, 23 cal. AA. gun. **4** torpedo tubes (8 torpedoes). Engines: 2 sets of 440 B.H.P. (400 r.p.m.) 6-cyl. 4-cycle Nelseco Diesel engines. 14·5/11 kts. 10,089/21,897 gallons. Motors: 2—370 H.P. in O 1, O 2, by New York Navy Yard; in others, by Electric Dynamic Co., all with Cutler-Hammer Co. magnetic controller. Gould storage batteries, Type 29-WLL in *O* 1 and *O* 2. Electric Storage Co., Type 49-WLL in others. Electric batteries weigh 65 tons. Radius of action: 3,500/3,000 miles, at 11 kts. *on surface.* Authorised 1915, as Nos. 62—71. Completed 1918.

*Note.*—*O* 5 wrecked, Oct. 28, 1923, and not considered worth repair after salvage. *O* 1 converted into an experimental vessel, 1937, and no longer effective.

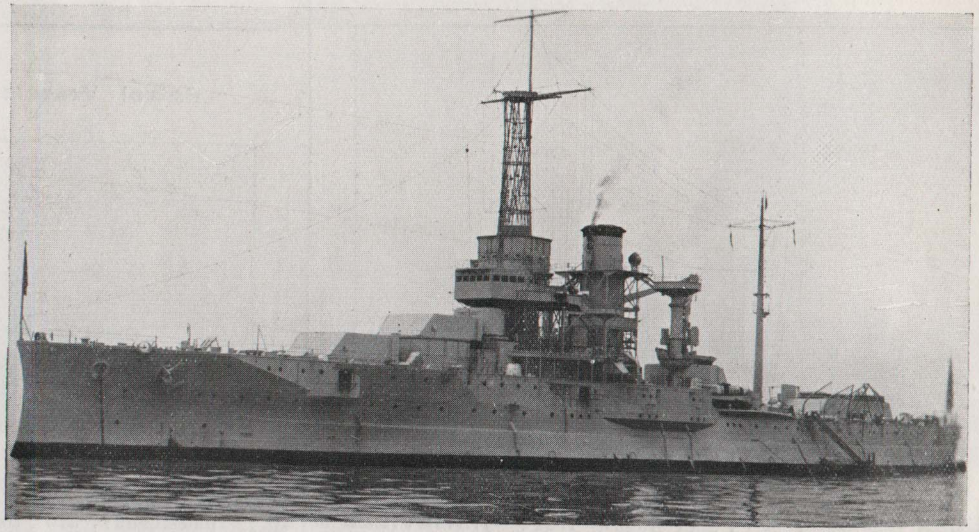
## Training Ship.



1933 *Photo, Official.*

**WYOMING** (May 26, 1911). Displacement: 19,700 tons (*standard*). Dimensions: 555½ (*w.l.*) × 93 × 23½ feet (*mean* draught). Guns: **6**—12 inch, 50 cal.; **16**—5 inch, 51 cal; **8**—3 inch AA., **4**—6 pdr. Parsons turbines. White-Forster boilers. H.P. 28,000 = 21 kts. Built by Cramps, sister to *Arkansas*, described on an earlier page. Demilitarised under terms of the London Naval Treaty, and bulges removed. H.P. and speed given above were prior to conversion. Best speed now is 18 kts.

## Target Ships.

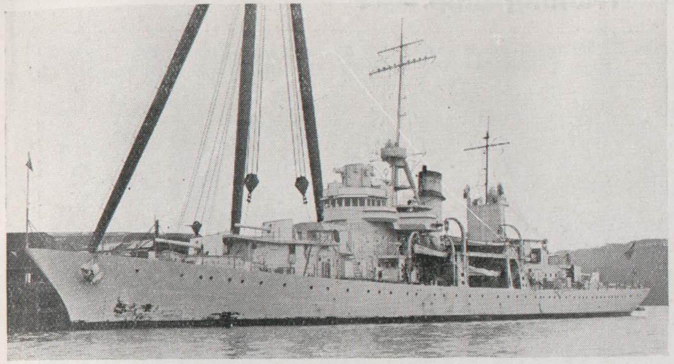


1934 *Photo.*

**UTAH** (New York S.B. Corpn., Dec. 23, 1909). Ex-battleship employed as wireless controlled target ship. *Standard* displacement: 19,800 tons. Dimensions: 512 (*w.l.*) × 106 × 22½ feet (*mean* draught). Parsons turbines. White-Forster boilers. Speed originally was 21 kts.

**LAMBERTON, BOGGS.** Ex-destroyers, now classed as Mobile Targets.

## Patrol Vessels—Gunboats.



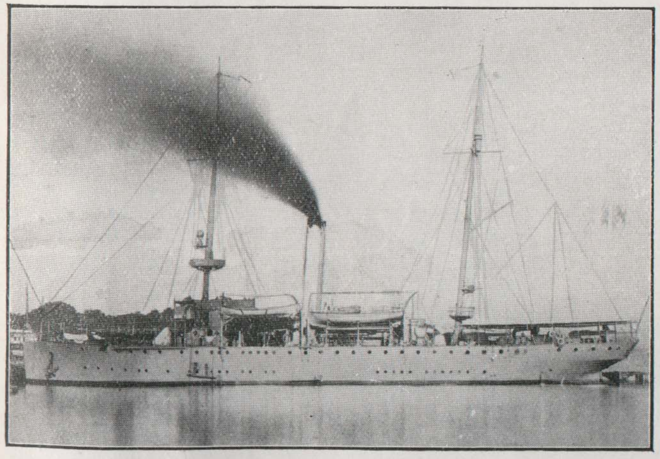
ERIE 1936, "*Fighting Ships.*"

**CHARLESTON** (Feb. 25, 1936). Built at Charleston Navy Yard.

**ERIE** (Jan. 29, 1936). Built at New York Navy Yard.

*Standard* displacement: 2,000 tons. Dimensions: 308 (*w.l.*), 328½ (*o.a.*) × 41⅓ × 11½ feet (*mean* draught). Guns: **4**—6 inch, **2**—quad. M.G. AA., **2**—6 pdr. 1 Seaplane in deck hangar. Machinery: Geared turbines. 2 shafts. S.H.P.: 6,200 = 20 kts.

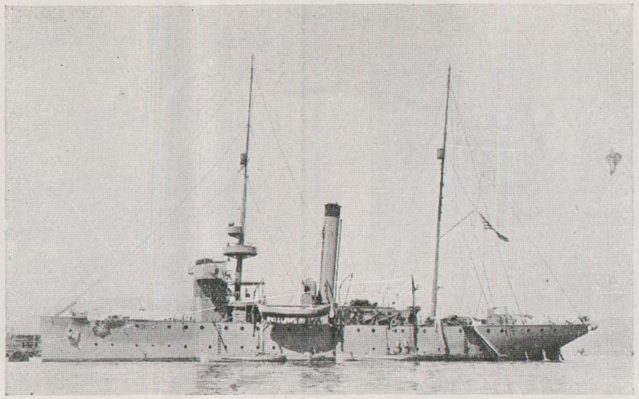
*Notes.*—Ordered 1933 under Emergency Programme. Laid down in Oct, and Dec., 1934, and completed in Oct., 1936. 6 inch guns are 47 cal. new model.



TULSA. 1925 *Photo, by courtesy of the Navy Dept.*

**TULSA** (Charleston, N.Y., 25th August, 1922). **ASHEVILLE** (Charleston, N.Y., July, 1918). Displacement. 1270 tons (*full load*, 1760 tons). Complement, 185. Length (*pp.*) 225 feet, (*o.a.*) 241⅙ feet. Beam, 41¼ feet. *Mean* draught, 11⅓ feet. Guns: **3**—4 inch, 50 cal., **2**—3 pdr., **3**—1 pdr. Machinery: Parsons turbine with reduction gear. 1 screw. Boilers: 3 Bureau (modified Thornycroft). Designed H.P. 800 = 12 kts. Fuel, 180 tons coal + 440 tons oil.

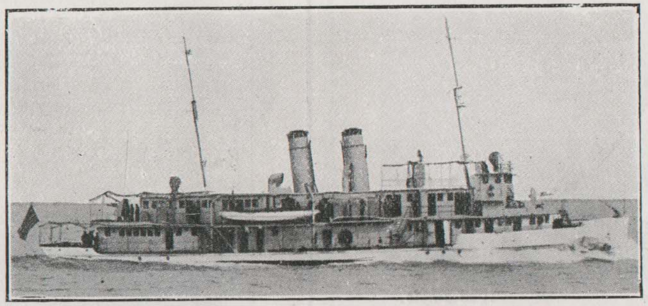
## Patrol Vessels—Gunboats—*continued.*



1919 *Photo.*

**SACRAMENTO** (Feb., 1914). Displacement, 1140 tons. Complement, 153. Length (*waterline*), 210 feet. Beam, 40⅚ feet. *Mean* draught, 11½ feet. Guns: **3**—4 inch, 50 cal.; **2**—3 pdr.; **2**—1 pdr. Machinery: 1 set triple expansion. Boilers: 2 Babcock. H.P. 950 (trials 1022 = 12·78 kts.). Coal: *maximum*, 428 tons. Built by Cramps. Completed, 1914.

## Patrol Vessels—River Gunboats (PR).

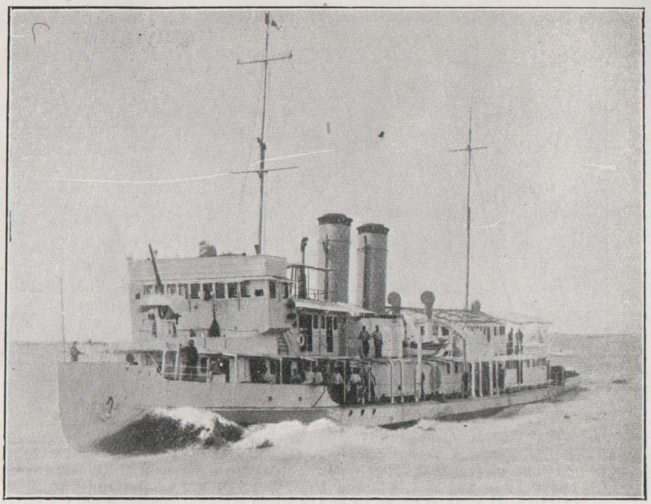


GUAM. 1928 *Official Photo.*

**GUAM** (May 28, 1927), **TUTUILA** (June 14, 1927). Displacement: 370 tons *standard*. 150 (*w.l.*), 159½ (*o.a.*). × 27 × 5¼ feet *mean* draught (fresh water), 6 feet (*max.*). Freeboard at side (main deck): Forward, 6 ft. 3 in.; amidships, 3 ft. 5 in.; aft, 4 ft. 2 in.

Triple expansion engines, $\frac{12 \times 18 \times 29}{16}$, revs. 320. H.P. 1950 = 14·5 kts. Oil fuel: 75 tons. Guns: **2**—3 inch, 23 cal., behind shields, **10** M.G. Complement, 63 *Guam*, 58 *Tutuila*.

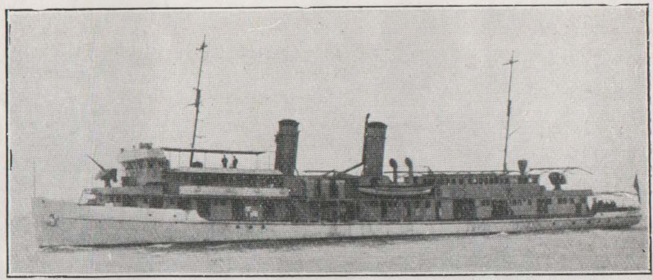
## Patrol Vessels—River Gunboats (PR)—*continued.*



PANAY. 1929 *Official Photo.*

**OAHU** (Nov. 26, 1927), **PANAY** (Nov. 11, 1927). Displacement: 450 tons *standard*. Complement, 65. 180 (*w.l.*), 191 (*o.a.*) × 28 × 5¼ (*mean*) 6½ (*max.*) Freeboard at side (mai deck): Forward, 7 ft. 9½ in.; amidships, 3 ft. 9½ in.; 4ft. 6 in

Triple expansion engines, $\frac{13\frac{1}{2} \times 22 \times 34}{16}$, revs. 320. H.P 2,250 = 15 kts. (Trials, 17·73 kts.). Oil fuel: 103 tons Guns: **2**—3 inch, 50 cal. AA., **10** M.G.



LUZON. 1929 *Official Photo.*

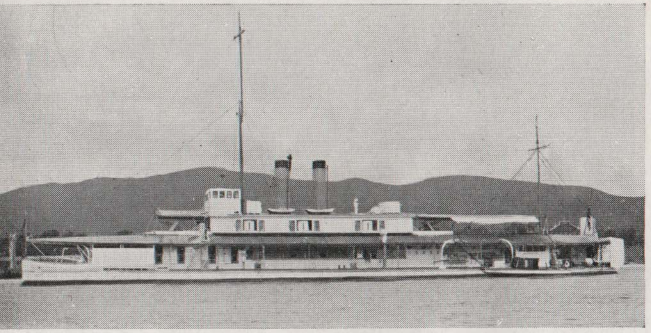
**LUZON** (Sept. 12, 1927), **MINDANAO** (Sept. 28, 1927) Displacement: 560 tons *standard*. Complement, 82 and 78 respectively. 198 (*w.l.*), 210¾ (*o.a.*) × 31 × 6½ (*mean*) 7 (*max.* Freeboard at side (main deck): Forward, 10 ft. 7 in. amidships, 5 ft. 7in.; aft, 5ft. 10 in.

Triple expansion engines, $\frac{15 \times 23 \times 36\frac{1}{4}}{18}$, revs. 320. H.P 3,150 = 16 kts. Oil fuel: 173 tons. Guns: **2**—3 inch, 50 cal AA., **10** M.G.

Above 6 gunboats authorised 1924 as *PG 43—48*, and laid dow 1926 by Kiangnan Dock and Engineering Works, Shanghai Completed, 1928.

The following characteristics are common to all six:—2 Thornycroft oil-burning boilers, 250 lbs. working pressure. 2 shafts

## Patrol Vessels—River Gunboats—*continued.*



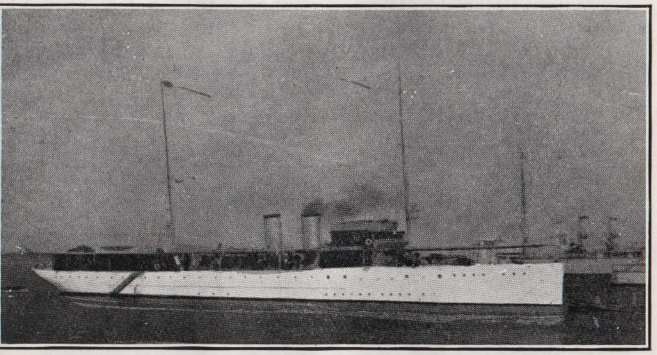
MONOCACY. 1932 (*added* 1935).

*Courtesy of U.S. Naval Institute, Annapolis, Md.*

(*Asiatic Fleet.*)

**MONOCACY** (1914). 180 tons. Complement: 46. Guns: 2—3 inch, 23 cal., 7 smaller. Machinery: 2 sets vertical compound. Boilers: 2 Babcock. Designed H.P.: 800 = 13¼ kts. Coal: 34 tons. Built at Mare Island Navy Yard and re-erected by Shanghai Dock and Engineering Co.

## Patrol Vessels (Ex-Yachts).



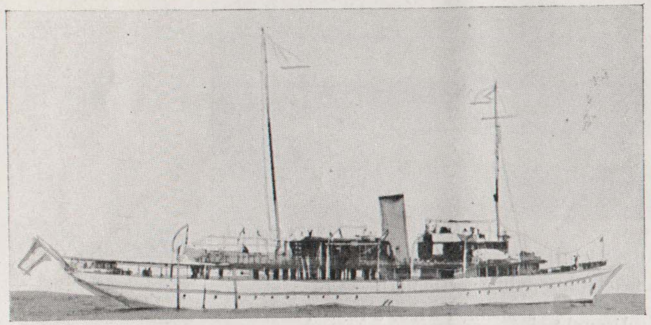
ISABEL. 1927 *Photo.*

**ISABEL** (Bath I.W., 1917, taken over 1917). 710 tons*. Dimensions: 230 (*w.l.*) × 26 × 8·6 feet. Guns: 2—3 inch, 50 cal., 2—3 inch, AA 6 smaller. S.H.P. 8400 = 26 kts. Parsons turbine and 2 Normand boilers. Fuel: 216½ tons oil. Complement, 99

*Note.*—Was fitted and classed as a Destroyer during the World War.

* Full load is 938 tons.

## Patrol Vessels—*continued.*

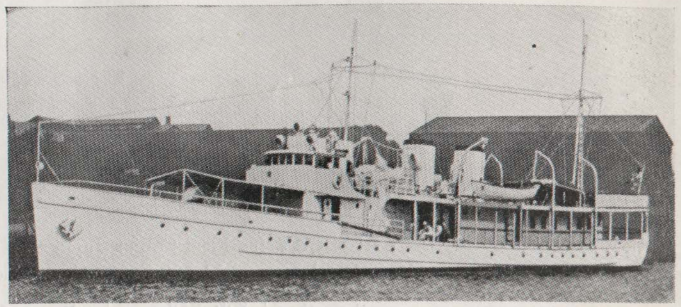


1934 *Photo.*

**NOKOMIS** (ex-*Nokomis II*, 1917, taken over 1917). 910 tons. Dimensions: 243 (*o.a.*) × 31·7 × 10·6 feet. Guns: 4—6 pdr. 2 smaller. Machinery: Triple expansion. Boilers: 2 Babcock. I.H.P. 2000 = 16 kts. Coal: 303 tons = 1517 miles at 14·7 kts. Complement, 145

(Recently employed on Surveying Duties.)

## Presidential Yacht

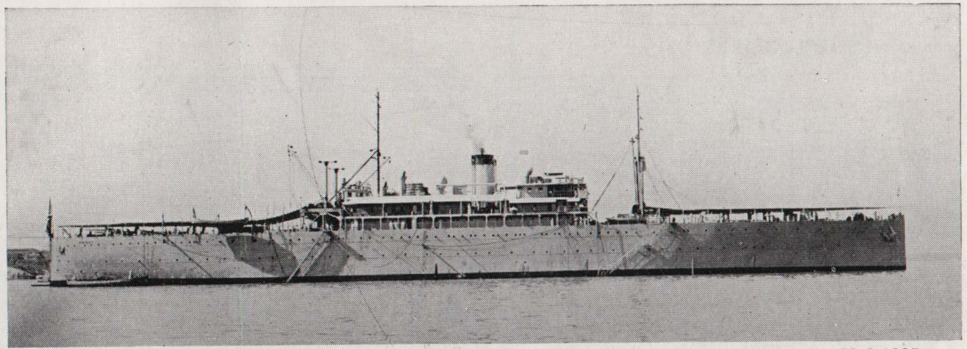


1937 *courtesy Winton Engine Corpn.*

**POTOMAC** (ex- U.S. Coast Guard patrol boat *Electra*). (1934). Displacement, 337 tons. Dimensions: 165 × 25¼ × 8½ feet. Machinery: Winton Diesels. H.P. 1,300 = 16.5kts.

## Aircraft Tenders.

*Note.*—Minesweepers *Avocet, Heron, Lapwing, Swan, Thrush, Gannet, Pelican, Teal* and *Sandpiper*, are now officially rated as Aircraft Tenders (small type) for Patrol Planes.

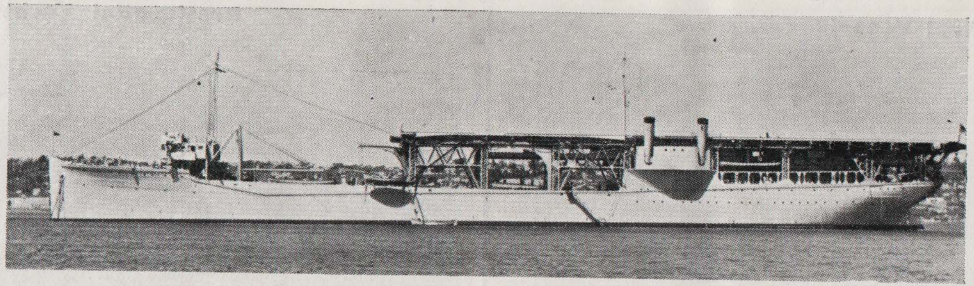


(*Classed as Seaplane Tender.*) *Official, added* 1935.

**WRIGHT** (ex-Emergency Fleet Corporation Hull *No. 680*, "Type B," launched at Hog Island, April 28th, 1920). Conversion effected by Tietjen & Lang Dry Dock Co., Hoboken, 1920-21. 11,500 tons. Dimensions: 448 (*p.p.* and *o.a.*) × 58 × 27⅝ feet *max.* draught. Guns: 2—5 inch, 51 cal., 2—3 inch, 50 cal. AA., 4 M.G. AA. Designed S.H.P. 6000 = 15 kts. G.E. Curtis geared turbines and 6 Babcock & Wilcox boilers. Oil: 1629 tons. Complement, 311. Fitted as flagship.

(*continued on following page.*)

## Aircraft Tenders—*continued.*



1937, *Official.*

**LANGLEY** (ex-Fleet Collier *Jupiter*, launched Aug. 24th, 1912, converted 1920-21).

Displacement, 11,500 tons. Complement, 341 (excluding flying personnel).

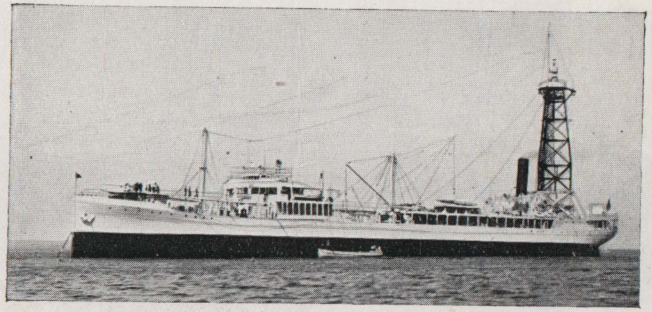
Length, { *w.l.* 519, *o.a.* 542 feet. } Beam, 65½ feet. Draught { *Mean*, 17 feet 3 in., *Max.*, 24 feet. }

Guns:
4—5 inch, 51 cal.
Carries 275 bombs for aircraft, also 24 torpedoes.)
Aircraft: 33

Machinery.—G.E. turbines and electric drive. 2 shafts. Boilers: 3 double-ended cylindrical and 1 auxiliary. S.H.P. (on first trials as Fleet collier) 7152 = 14·99 kts. *Max.* fuel capacity: oil only, 2300 tons.

*Engineering Notes.*—First large ship of U.S.N. built with electric drive and Melville-McAlpine reducing gear. This system of propulsion proved so successful, that it was adopted for Capital Ships. Two horizontal smoke ducts on port side with hinged extensions which can be lowered. Fitted with Sperry gyro-stabiliser.

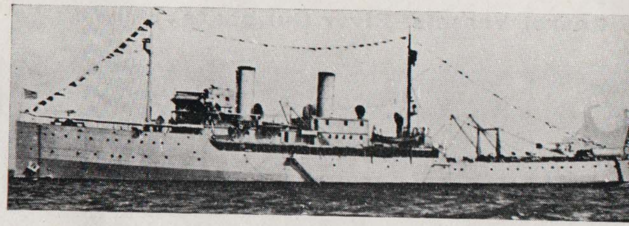
*General Notes.*—Begun at Mare Island N. Yd., October, 1911, and completed as Fleet Collier, 1913. So served till March, 1920, when she was placed out of commission for conversion by Norfolk Navy Yd. into an Aircraft Carrier. In 1937 she was further modified and reclassed as an Aircraft Tender.



1934 *Official.*

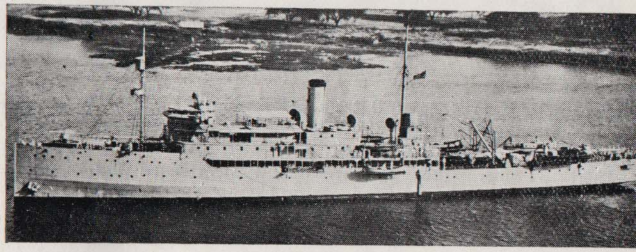
**PATOKA** (1919). Displacement: 16,800 tons. Dimensions: 463¼ (*p.p.*) × 60 × 26¼ feet (*mean* draught). Complement: 156. Guns: 2—5 inch, 2—3 inch AA. Machinery: Quadruple expansion. I.H.P.: 2,900 = 10·5 kts. Boilers: 3 S.E. Oil fuel: 1,109 tons. *Patoka*, though classed as an oiler, is fitted with a mooring mast for aircraft and a landing platform for planes. Equipment includes workshops for repair of aircraft and storage for petrol.

## Mine Layers.



1932 *Photo, Official.*

**AROOSTOOK** (Cramps, 1907. Ex-S.S. *Bunker Hill*, Eastern Steamship Corpn., purchased 1917 and converted Boston N.Yd. into Mine Planter). All details as *Ogla* Boilers: 8 S.E. H.P. 7000 = 20 kts. Has been employe as Aircraft Tender. Now out of commission.



1932 *Photo, Official.*

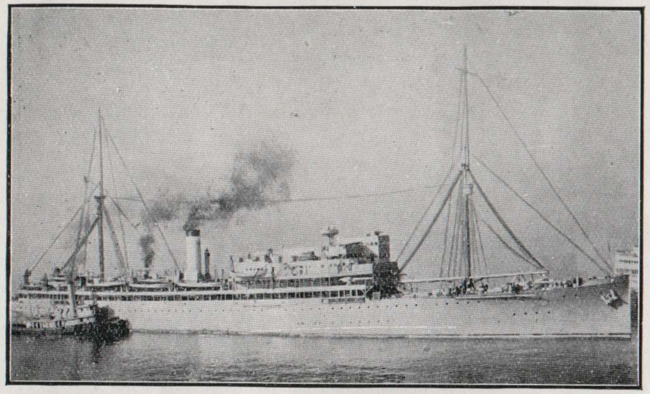
**OGLALA** (Cramps, 1907. Ex-*Shawmut*, ex-S.S. *Massachusetts*, Eastern Steamship Corpn., purchased 1917 and converted Boston N.Yd. into Mine Planter). 4950 tons. Dimensions 395 (*o.a.*) × 52⅙ × 14½ feet (*mean*). Guns: 1—5 inch, 5 cal., 2—3 inch AA., 2—6 pdr., 4—1 pdr. Reciprocatin engines and 4 S. E. boilers. 2 screws. H.P. and spee uncertain. Oil: 607 tons. Complement: 373. Now ou of commission.

## Motor Torpedo Boats.

2 building for experimental purposes. To be equipped with bov torpedo tube and stern trough. Engines, probably of Italiar design. Speed: 43 kts. expected.

**General Note to this and following pages.**—Armaments of U.S. Tenders and Auxiliaries as given below are those authorised, but in a great many cases these are not actually carried under peace conditions. Complements are maximum for war purposes; normal figures are considerably lower. 6 Auxiliaries are to be built under 1938 Programme comprising—1 Seaplane Tender, 1 Destroyer Tender, 1 Submarine Tender, 1 Oiler, 1 Minesweeper and 1 Fleet Tug.

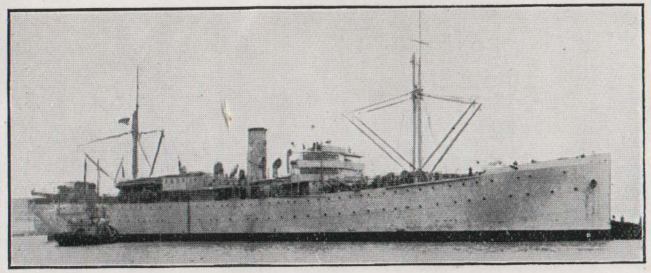
## Auxiliaries—Destroyer Tenders.



DOBBIN. 1925 *Official Photo, U.S. Navy Dept.*

**WHITNEY** (Boston N.Yd., Oct. 12th, 1923), **DOBBIN** (Philadelphia N.Yd., May 5th, 1921). *12,450 tons. Dimensions: 460 (*p.p.*), $483\frac{5}{6}$ (*o.a.*) × 61 × $24\frac{1}{6}$ feet (*mean* draught). Guns: **8**—5 inch, **4**—3 inch AA., **2**—6 pdr. Torpedo tubes, for testing purposes: **2**—21 inch. Parsons geared turbines. Boilers: 2 Bureau Modified Thornycroft. 1 screw. Designed S.H.P. 7000 = 16 kts. Oil: 1107 tons. Complement, 589. Equipped to serve as Depot, Repair and Hospital Ship for 18 Destroyers. Possesses special anti-torpedo protection. Generally sister ships to *Holland*, Tender to Submarines. Both fitted as flagships.

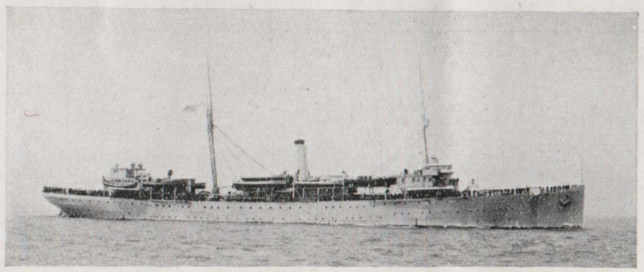
* Full load in these and other tenders.



ALTAIR. 1927 *Official Photo.*

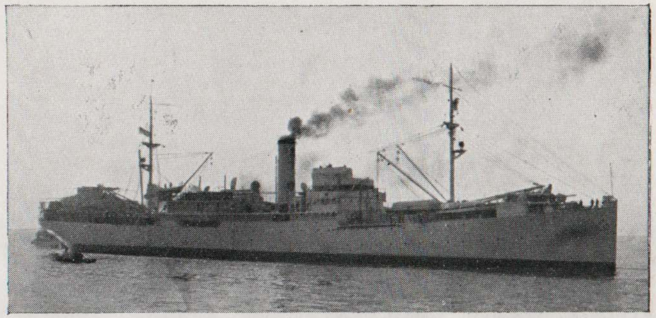
**ALTAIR** (1919), **DENEBOLA** (1919), **RIGEL** (1918). 10,000 tons. Dimensions: $423\frac{3}{4}$ × 54 × 20 feet. Guns: **4**—5 inch, 51 cal., **4**—3 inch AA., **2**—6 pdr. Curtis geared turbines. Boilers: 3 single-ended. S.H.P. 2500 = 10·5 kts. Oil: 1097 tons. Complement, 284 to 590. All three built by Skinner & Eddy Corporation, Seattle.

## Destroyer Tenders—*continued.*



*Official, added* 1935.

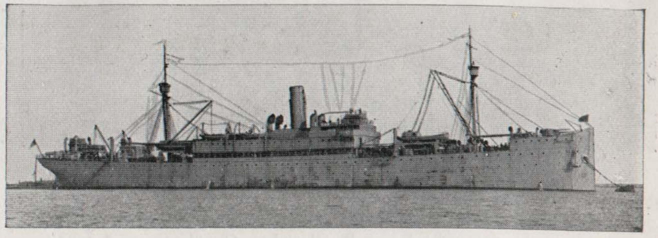
**MELVILLE** (1915). 7150 tons. Complement, 574. Dimensions: 400 (*p.p.*) × $54\frac{1}{2}$ × 20 feet (*mean* draught). Guns: **8**—5 inch (51 cal.), **1**—3 inch AA., **2**—3 pdr. Torpedo tubes: **1**—18 inch. Machinery: Parsons geared turbines. 2 Thornycroft boilers. H.P. (estimated) 4006 = 15·09 kts. Fuel: 930 tons *oil*. Built by New York S.B. Co.



1934 *Photo.*

**BLACK HAWK** (Cramp, 1913, ex-Grace Steamship Co. S.S. *Santa Catalina*, taken over 1917). 8,900 tons. Dimensions: $404\frac{1}{2}$ (*p.p.*) × $53\frac{3}{4}$ × $19\frac{3}{4}$ feet. Guns: **4**—5 inch, **2**—3 pdr., **2**—1 pdr. Machinery: Quadruple expansion. Boilers: 3 single-ended. I.H.P. 3400 = 13 kts. Oil: 2108 tons. Complement, 685.

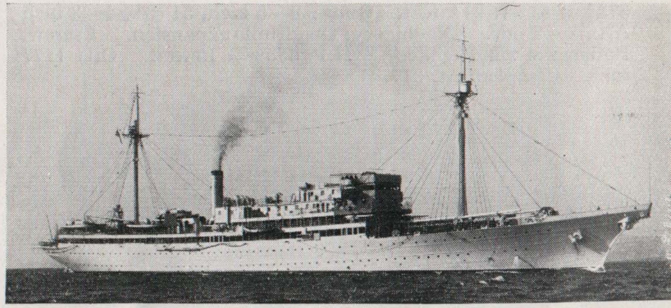
## Destroyer Tenders—*continued.*



1920 *Photo, Seward, Weymouth.*

**BRIDGEPORT** (Vegesack, Germany, 1901, ex-North German Lloyd S.S. *Breslau*, seized 1917). 11,750 tons. Dimensions: $429\frac{1}{3}$ (*p.p.*) × $54\frac{1}{3}$ × $24\frac{2}{3}$ feet. Guns: **8**—5 inch, **4**—3 inch 50 cal. AA. Machinery: Quadruple expansion. Boilers: 2 double-ended and 2 single-ended. I.H.P. 3600 = 12·5 kts. Coal: 1060 tons. Complement, 552.

## Auxiliaries—Submarine Tenders.

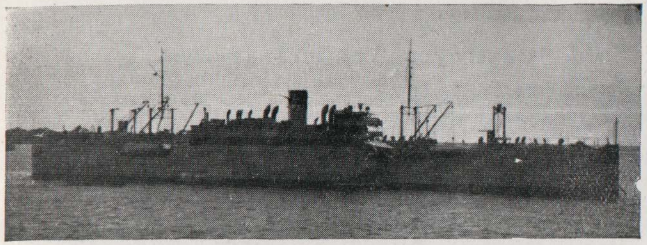


1937, *O. W. Waterman.*

**HOLLAND** (Puget Sound N. Yd., April 12, 1926). Begun April 11th, 1921, completed 1926. 11,570 tons. Dimensions: 460 (*pp.*), 513 (*o.a.*) × 61 (*extreme*) × $22\frac{3}{4}$ feet (*mean* draught). Guns: **8**—5 inch, **4**—3 inch AA., **2**—6 pdr. Torpedo tubes: **1**—21 inch, *submerged*. Parsons geared turbines. 1 screw. Boilers: 2 Bureau Modified Thornycroft. Designed S.H.P. 7,000 = 16 kts. Oil: 1050 tons. Complement, 398. Generally sister ship to *Whitney* and *Dobbin*, Destroyer Tenders.

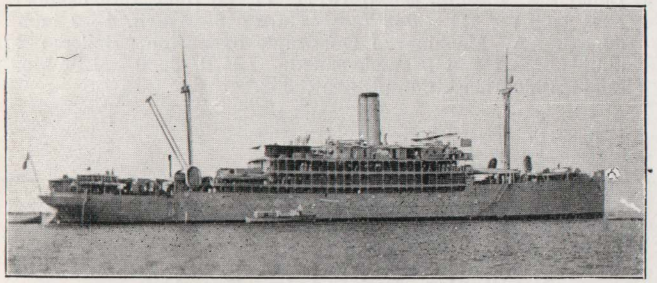
## Submarine Tenders—*continued.*

*Note.*—Obsolete Cruiser *Alton*, ex-*Chicago*, Submarine Barracks at Pearl Harbour. Various Minesweepers of "Bird" class serve as Submarine Tenders at New London, Hampton Roads; Coco Solo, and Pearl Harbour.



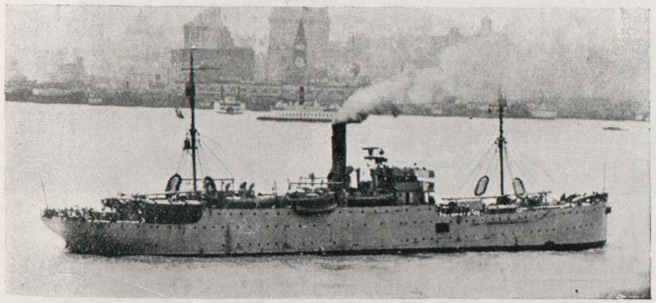
ARGONNE. 1930 *Photo, Lt.-Com. H. A. Gosnell, U.S.N.*

**ARGONNE** (Hog Island, 1920). 11,100 tons. Dimensions: 448 × 58 × 24$\frac{2}{3}$ feet *max.* draught. Guns: 4—5 inch, 51 cal., 4—3 inch, 50 cal. AA., 2—6 pdr. Curtis geared turbines. 1 screw. Boilers: 6 Babcock. S.H.P. 6000 = 15 kts. Oil fuel: 1473 tons. Complement, 344.



1926 *Official Photo.*

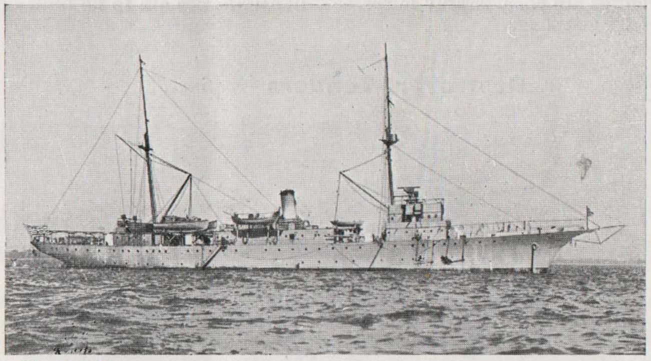
**CANOPUS** (New York S.B. Co., 1919). 8000 tons. Dimensions: 373$\frac{3}{4}$ × 51$\frac{1}{2}$ × 21$\frac{1}{2}$ feet. Guns: 2—5 inch, 51 cal., 4—3 inch AA., 2—3 pdr. Machinery: Quadruple expansion. 1 screw. Boilers: 4 single-ended. H.P. 3858 = 13 kts. Oil: 1277 tons. Complement, 317.



1935, *Bear Photo Service.*

**CAMDEN** (Flensburger S. B. Co., 1900, ex-German-Australian s.s. *Kiel*, seized 1917). 9000 tons (estimated). Dimensions: 403$\frac{2}{3}$ (*o.a.*) × 48 × 22$\frac{1}{3}$ feet. Guns: 4—4 inch, 2—3 pdr., 2—1 pdr. Boilers: 4 Babcock. I.H.P. 2550 = 12 kts. Coal: 975 tons. Complement, 378.

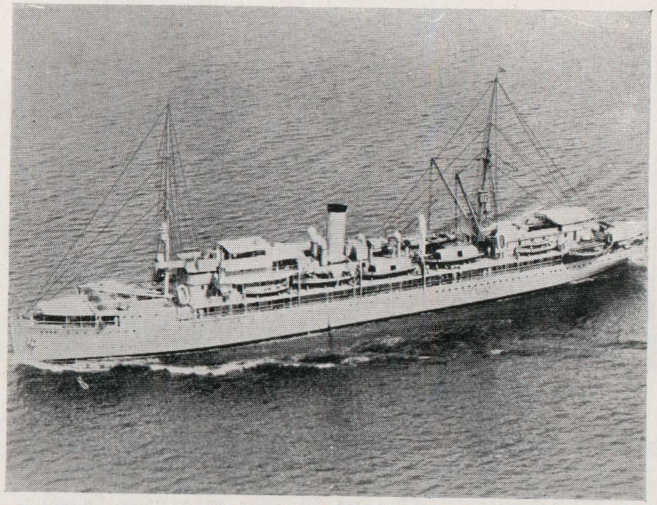
## Auxiliaries—Submarine Tenders—*continued.*



BUSHNELL. 1919 *U.S. Navy Photo.*

(*Atlantic Fleet.*)

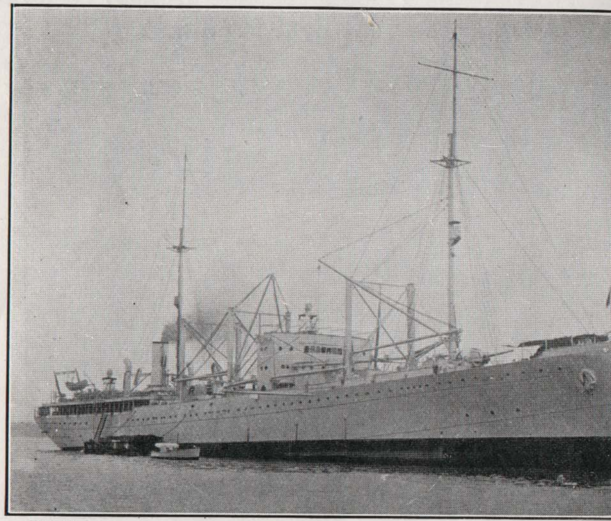
**BUSHNELL** (Seattle Constrn. and D.D. Co., 1915). 3580 tons. Complement: 217. Dimensions: 350$\frac{1}{2}$ × 45$\frac{2}{3}$ × 15 feet (*mean* draught). Guns: 4—5 inch (51 cal.). Machinery: Parsons turbines with reduction gear. Boilers: 2 Yarrow. H.P. (*on trials*) 2617 = 14·15 kts. Fuel: 728 tons *oil.*



BEAVER. 1935, *courtesy of U.S. Naval Institute, Annapolis, Md.*

**BEAVER** (Newport News, 1910, purchased 1918). 6250 tons. Dimensions: 380 (*o.a.*) × 47 × 22$\frac{2}{3}$ feet (*max.* draught), Guns: 4—5 inch, 2—1 pdr. 1 screw. Boilers: 6 single-ended. I.H.P. 4500 = 16·5 kts. Fuel: 530 tons oil fuel. Complement, 350.

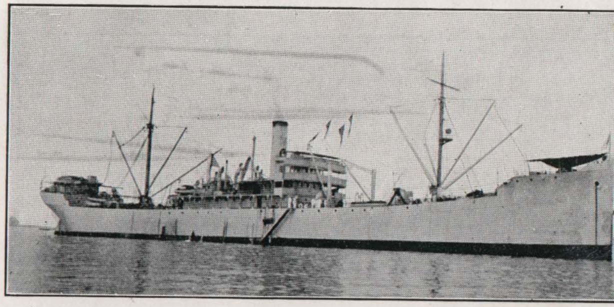
## Auxiliaries—Ammunition Ships.



PYRO. 1924 *Official Photo.*

**NITRO, PYRO** (both launched Dec. 16th, 1919, at Puget So
N.Yd.). 10,600 tons. Dimensions: 460 × 61 × 21
Guns: 4—5 inch, 2—3 inch AA. Boilers: 4 Babc
S.H.P. 6700 = 13·3 kts. (*N.*), 13·2 kts. (*P.*). Parsons (gea
turbines. 2 screws. Fuel capacity: 1078 tons coal (*Ni*
1493 tons oil (*Pyro*). Fitted with plant for powder tes
and cooling, also large cold storage capacity for meat
addition to ammunition-carrying spaces. Complement,

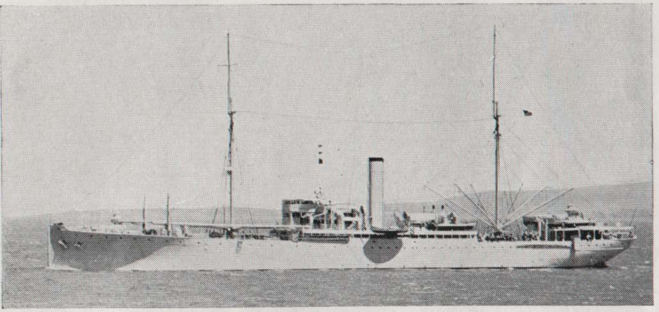
## Auxiliaries—Store Ships.



ARCTIC. 1926 *Official Photo.*

**ARCTIC** (1919), **BOREAS** (1919), **YUKON** (1920). 12,600 t
Dimensions: 416$\frac{1}{2}$ × 53 × 26$\frac{1}{2}$ feet. Guns: 2—5 inch
cal., 4—3 inch AA. (not always carried). Parsons gea
turbines in *Arctic* and *Yukon*, Curtis in *Boreas*. Desig
H.P. 2800 = 11 kts. Boilers: 4 Heine, except *Yuko*
single-ended. Oil: 1794 tons. Complements: 166
180 (*B*), 211 (*A*).

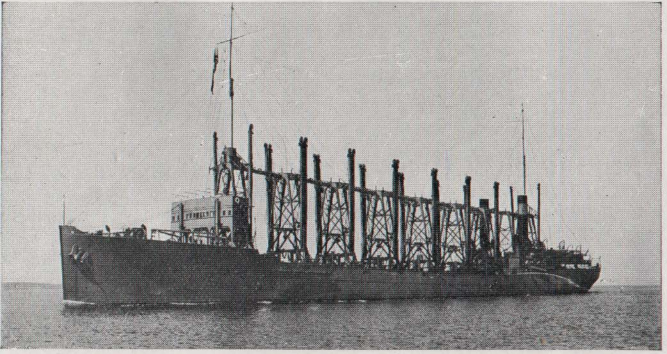
## Auxiliaries—Store Ships—*continued.*



1935, *Bear Photo Service.*

**BRIDGE** (Boston N.Yd., May 18th, 1916). 8500 tons. Complement, 212. Dimensions: 423 × 55¼ × 20⅔ feet (*mean* draught). Guns: 4—5 inch, 50 cal., 1—3 inch AA., 2—3 pdr. Boilers: 2 White-Forster. H.P. 4000 = 14 kts. Reciprocating engines. 2 screws. Fuel: 1000 tons *oil.* Fitted with towing winch, and has been employed as target towing vessel.

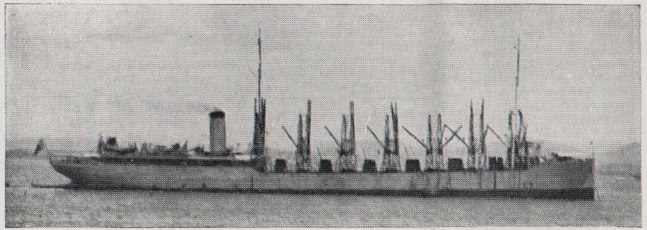
## Auxiliaries—Colliers.



1919 *Photo, O. W. Waterman.*

**NEPTUNE** (1911). 19,480 tons. Dimensions: 542 × 65 × 27⅔ (*mean*). 2 screws. Boilers: 3 double-ended. S.H.P. 5400 = 14 kts. Fuel capacity (deadweight to designed draft): 10,500 tons cargo fuel + 2000 tons own bunker fuel. *Maximum* cargo capacity (close stowage): 10,200 tons coal + 2925 tons oil *or* 11,700 tons coal + 1250 tons oil. Guns: 4—4 inch. 2 Westinghouse geared turbines. Complement, 181.

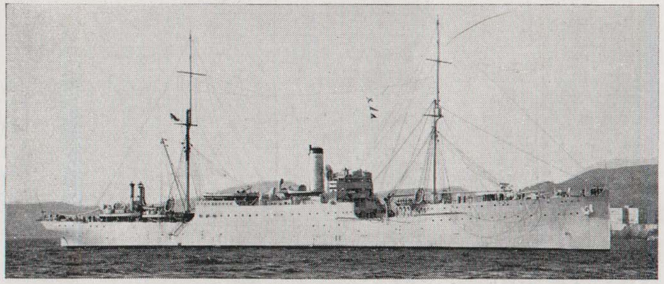
## Auxiliaries—Colliers—*continued.*



NEREUS. *Photo added 1921.*

**NEREUS** (1913), **PROTEUS** (1912). 19,080 tons. Dimensions: 522 × 62 × 27⅔ (*mean*). 2 screws. Boilers: 3 double-ended. H.P. 7000 = 14 kts. Fuel capacity (deadweight to designed draft): 10,500 tons cargo fuel, Bunker capacity, 2,000 tons. *Maximum* cargo capacity (close stowage): 11,800 tons coal + 1125 tons oil *or* 10,100 tons coal + 3050 tons oil. Guns: 4—4 inch, 50 cal. Complement, 181.

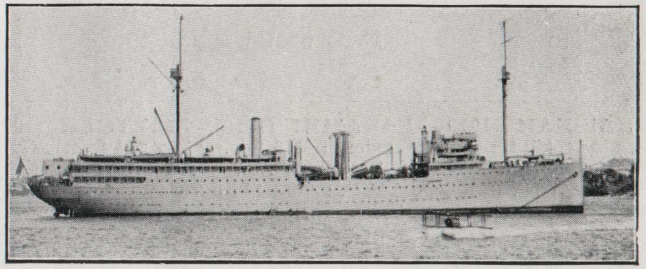
## Auxiliaries—Repair Ships.



VESTAL. 1935, *Bear Photo Service.*

**PROMETHEUS** (Mare Island N.Yd., 1908). **VESTAL** (New York N. Yd., 1908). 8100 tons, full load. Dimensions: 450 × 60 × 18 feet. Guns: 4—5 inch, 50 cal., 1—3 inch AA., 4—30 cal. Machinery: Triple expansion. Boilers: *Prometheus*, 6 Babcock; *Vestal*, 2 White-Forster. H.P. 7,500 = 16 kts. Oil: *Prometheus*, 872 tons; *Vestal*, 928 tons. Complement, 466. (This ship is being re-engined, 1937).

## Auxiliaries—Repair Ships.—*continued*



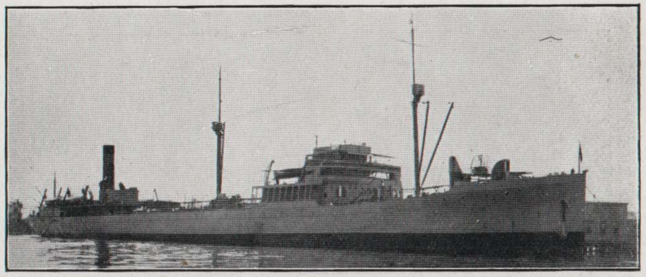
1925 *Photo, W. W. Stewart, Esq.*

(*Pacific Fleet.*)

**MEDUSA** (Puget Sound N.Yd., April 16th, 1923). 10,620 tons. Dimensions: 460 × 70 × 20 feet. Guns: 4—5 inch, 51 cal., 2—3 inch AA., 2—6 pdr., 4—30 cal. Parsons geared turbines. Designed S.H.P. 7000 = 16 kts. 2 Bureau Modified Thornycroft boilers. Oil: 1834 tons. Complement, 466 (including an exceptionally full technical staff).

*Note.*—The *Medusa* was specially designed with a view to the execution of permanent as well as temporary repairs. She carries two 8 ton derricks, besides one 20 ton, one 10 ton and two 8 ton shear legs. Machinery is installed aft. Equipment, includes a medical and hospital section.

## Auxiliaries—Oilers.



TRINITY. 1927 *Official Photo.*

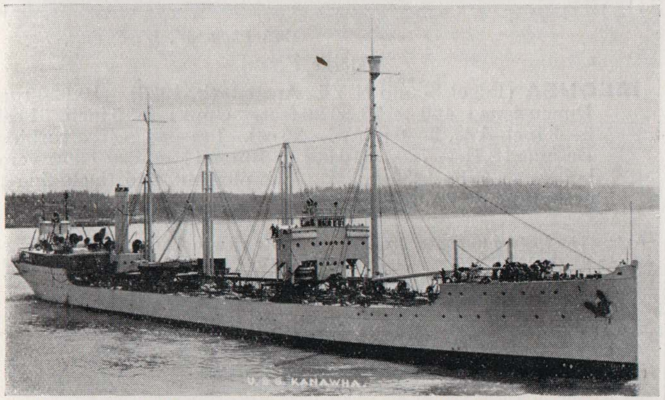
**RAPIDAN** (1919), **SALINAS** (1920), **TIPPECANOE** (1920), **RAMAPO** (1919), **SAPELO** (1919), **SEPULGA** (1920), **TRINITY** (1920). 16,800 tons. Dimensions: 463¼ (*p.p.*) × 60 × 26¼ feet (*mean* draught). Quad. Exp. reciprocating engines.† 3 S. E. boilers. I.H.P. 2900 = 10·5 kts. Guns: 2—5 inch, 51 cal., 2—3 inch AA. *Max.* cargo capacity: 11,145 tons oil fuel. Own fuel: 1109 tons oil. Complement, 107.

†Curtis turbine in *Trinity* and *Tippecanoe*.

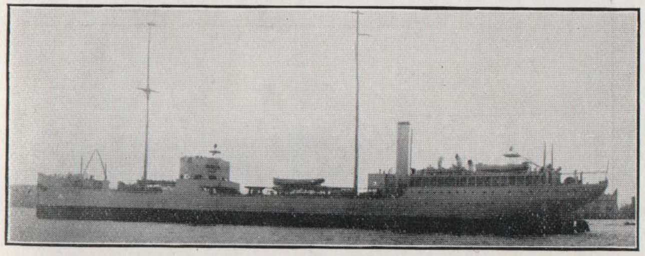
## Auxiliaries—Oilers—*continued.*

Photo wanted

**KAWEAH** (1919), **LARAMIE** (1920), **MATTOLE** (1920), 14,450 tons. Dimensions: 446 (*o.a.*) × 58 × $25\frac{1}{2}$ feet. Guns: 2—5 inch, 51 cal., 2—3 inch AA. Reciprocating engines and 3 S. E. boilers. H.P. 2800 = 11 kts. Cargo capacity, 8850 tons. Own fuel, 1288 tons. Complement, 107.



KANAWHA (& MAUMEE). 1935, *Bear Photo Service.*

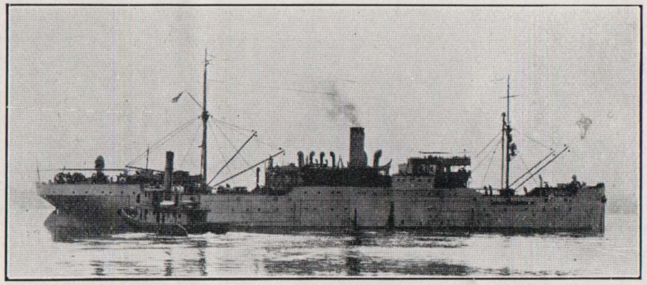


BRAZOS (and remainder). 1927 *Official Photo.*

**CUYAMA** (1916), **MAUMEE** (1915), **KANAWHA** (1914). 14,500 tons. Complement: 249—475.

**BRAZOS** (1919), **NECHES** (1920), **PECOS** (1921), 14,800 tons. Complements: 227—317. Dimensions: $475\frac{2}{3}$ (*o.a.*) × 56 × $26\frac{2}{3}$ feet (*mean*). Guns: 4—5 inch, 51 cal., 2—3 inch. Machinery: Vert. triple expansion. H.P.: 5,200 = 14 kts.; except *Maumee*, 6 cyl. 2-cycle Diesels, H.P.: 5,000 = 14 kts. Boilers: 4 Ward in *Neches* and *Pecos*, 4 B. & W. in others, except *Maumee*, 2 B. & W. Cargo capacity: 7,850 tons. Own fuel: 820 tons. *Cuyama, Kanawha, Maumee,* have towing winches.

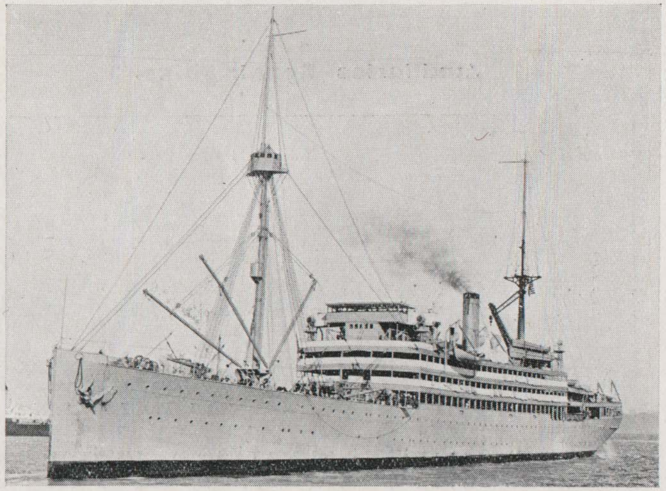
## Auxiliaries—Cargo Ships.



**ANTARES** (1919).
**REGULUS, GOLD STAR** (*ex Arcturus*) (1920).
**CAPELLA** (1920), **SIRIUS** (1919), **SPICA** (1919), **VEGA** (1919). 11,450 tons. Dimensions: 401 × 54 × $24\frac{1}{2}$ feet. Guns: 2—5 inch, 51 cal., 4—3 inch AA. Curtis geared turbines. 3 Babcock boilers. H.P. 2500 = 11·5 kts. Oil: 1222 tons. Complement, 106.

*Antares* flagship Training Squadron, Scouting Fleet, Atlantic, and is fitted as Target Repair Vessel, carrying special photographic apparatus for recording results of target practice.

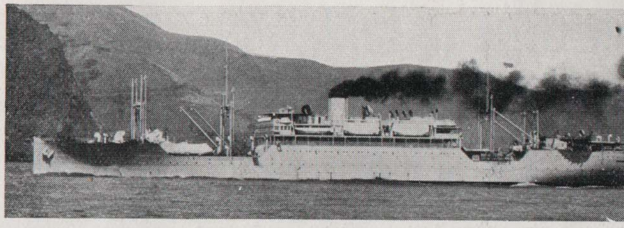
## Auxiliaries—Transports.



1935, *Bear Photo Service.*

**HENDERSON** (1916). 10,000 tons. Complement, 424. Dimensions: $483\frac{5}{6}$ (*o.a.*) × 61 × 20 feet (*mean* draught). Guns: 8—5 inch, 51 cal., 2—3 inch, 2—3 pdr., 2—1 pdr. H.P. 4000 = 14 kts. Reciprocating engines. Boilers: 3 Babcock. 2 screws. Fuel: 1400 tons *oil*. Has Sperry gyro. stabilisers. To take 2000 men and 32 horses.

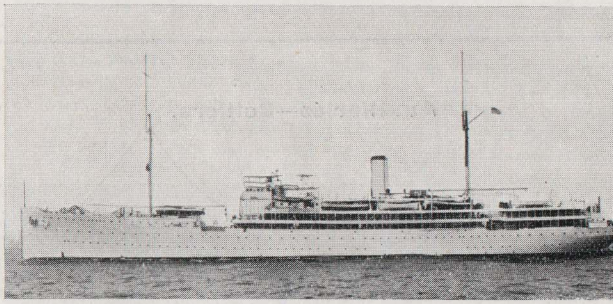
## Auxiliaries—Transports—*continued.*



1935, *Bear Photo Service*

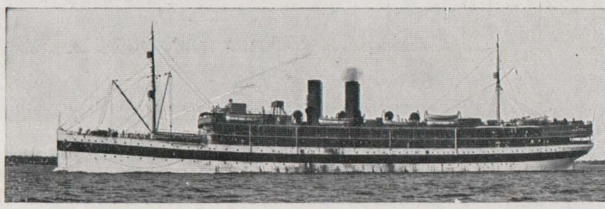
**CHAUMONT** (Hog Island, 1920). 10,700 tons. Dimensi
448 × 58 × 23 feet. Guns: *Nil.* 1 screw. G.E. Curtis ge
turbines. Boilers: 6 Babcock. S.H.P. 6000 = 15 kts.
1473 tons. Complement, 249.

## Auxiliaries—Hospital Ships.



1935 *Officia*

**RELIEF** (Dec., 1919, Philadelphia N.Y.). 9800 t
Dimensions: 460 (*p.p.*) × 61 × $19\frac{1}{2}$ feet. Designed
5250 = 16 kts. Parsons geared turbines. 2 scr
3 Babcock and Wilcox boilers. Oil: 1951 tons.
plement, 397.

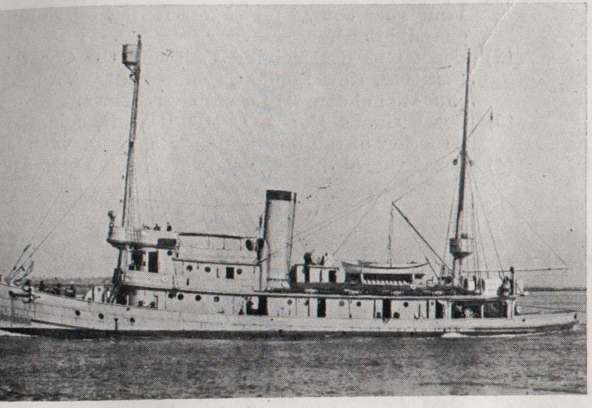


1920 *Photo*

**MERCY** (ex-Ward Liner *Saratoga*, built by Cramp, 1907), 9,450
Complement, 377. Dimensions: $429\frac{5}{6}$ (*o.a.*) × $50\frac{1}{6}$ × $22\frac{2}{3}$
Boilers: 8 S.E. I.H.P. 8500 = 18 kts. Coal: 1776 tons. Purc
1917.

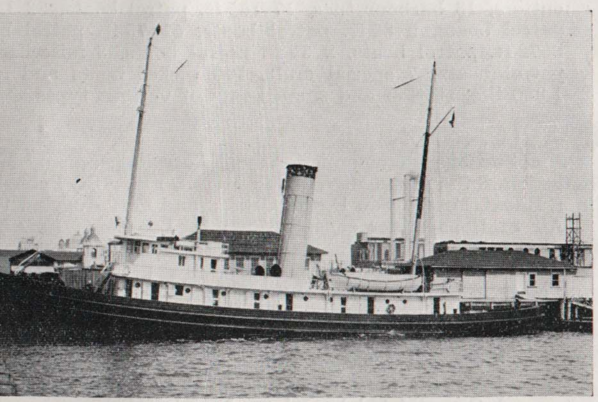
### Auxiliaries—Oceangoing Tugs.

**SPRING** (1920). 775 tons. Dimensions: 150 (*o.a.*) × 27⅔ × 14 feet. Guns: *nil*. H.P. 850=11 kts.



NOLA. 1932 *Photo, Official.*

**ORMA, BAGADUCE, IUKA, KALMIA, KEOSANQUA, KEWAYDIN, KOKA, MAHOPAC, MONTCALM** (ex-*Kineo*), **NAPA, PINOLA, SCIOTA, SUNNADIN, TADOUSAC, TATNUCK, UMPQUA, WANDANK.** All launched 1919-20. **ALLEGHENY** (1917), **SAGAMORE** 1917). 1000 tons. Dimensions: 149⅓ (*p.p.*) × 30 × 14⅔ feet. Guns: 2—3 inch AA. I.H.P. 1800=13 to 14 kts. Oil: 279 tons.

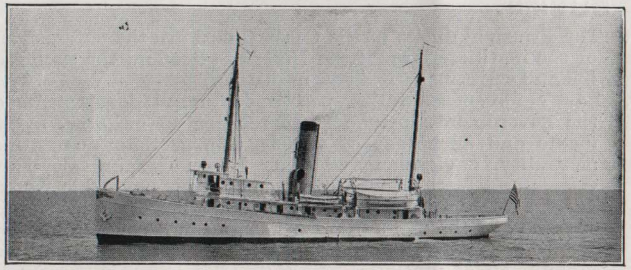


AMAROA. 1931 *Photo.*

**OKIA, TAMAROA** (1919). 800 tons. Dimensions: 151¼ × 27½ × 15 feet. Guns: 2—1 pdr. Speed: 11 kts. Oil fuel.

**DAUNTED** (1917). 450 tons. Dimensions: 143 (*o.a.*) × 28 × 15 feet. Guns: 1—3 inch AA. I.H.P.: 1,000 = 11·5 kts. Oil fuel: 329 tons.

### Auxiliaries—Oceangoing Tugs—*continued.*



**ACUSHNET** (1908). Steel, 1 screw. 859 tons. Dimensions: 152 × 29 × 13¾ feet. Speed: 12·5 kts. Guns: 2—1 pdr.

**SONOMA** (1912) and **ONTARIO** (1912). 1120 tons. Dimensions: 175 (*p.p.*) × 34 × 12½ feet (*mean*). Guns: 1—3 inch, 1—3 inch AA. Speed: 13 kts. Coal: 440 tons (*average*).

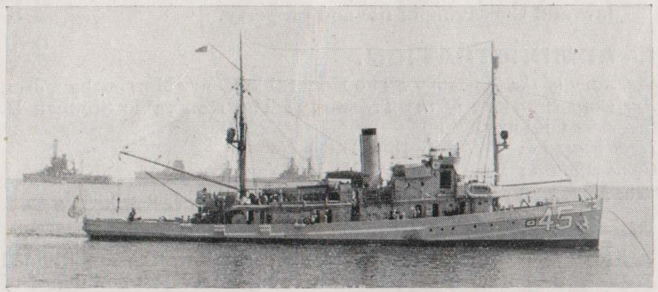
**PATUXENT** (1908). 755 tons. Dimensions: 148 (*p.p.*) × 29 × 12¼ feet. Guns: 1—3 inch AA. H.P. 1160 = 13 kts. Coal: 324 tons.

**GENESEE** (ex-*Monocacy*, 1905, bought 1917). 1000 tons. Guns: 2—3 inch. I.H.P. 1000 = 15 kts. Coal: 286 tons.

*Notes.*—Other and Smaller Tugs attached to Naval Districts, rated as "Harbor Tugs."

### Mine-Sweepers.

*Notes.*—*Avocet, Heron, Lapwing, Thrush, Gannet, Pelican, Sandpiper, Swan,* and *Teal* are all classed as Aircraft Tenders (small type) for Patrol Planes; each carries a seaplane aft. *Seagull, Quail,* have been used as Submarine Tenders; *Penguin* is engaged in patrolling Chinese rivers; *Redwing* has been transferred to Coast Guard (see a later page); *Falcon, Mallard, Chewink, Ortolan, Pigeon, Widgeon* classed as Submarine Rescue Vessels; *Whippoorwill* at Pearl Harbor.



ORTOLAN. 1935, *Bear Photo Service.*

("BIRD" CLASS—42 BOATS.)

**LAPWING, OWL, ROBIN, SWALLOW, CHEWINK, CORMORANT, GANNET** (all built by Todd S. B. Co., Tebo Yacht Basin, Brooklyn, N. Y.).

### Mine-Sweepers—*continued.*

**TANAGER, ORIOLE, GREBE, MALLARD, ORTOLAN, PEACOCK** (all built by Staten Id. S.B. Co., N. Y.).

**AVOCET, BOBOLINK, LARK, PIGEON** (all built by Baltimore D. D. & S. B. Co.).

**PELICAN, FALCON, SEAGULL, TERN** (all built by Gas Engine & Power Co., Morris Heights, N. Y.).

**TURKEY, WOODCOCK, QUAIL, PARTRIDGE** (all built by Chester S. B. Co.).

**SANDPIPER, WARBLER, VIREO, WILLET** (all built by Philadelphia Navy Yard).

**SWAN, WHIPPOORWILL, BITTERN** (all built by Alabama S. B. & D. D. Co., Mobile).

**WIDGEON, TEAL, BRANT** (all built by Sun S. B. Co., Chester).

**KINGFISHER, RAIL** (both built by Puget Sound Navy Yard).

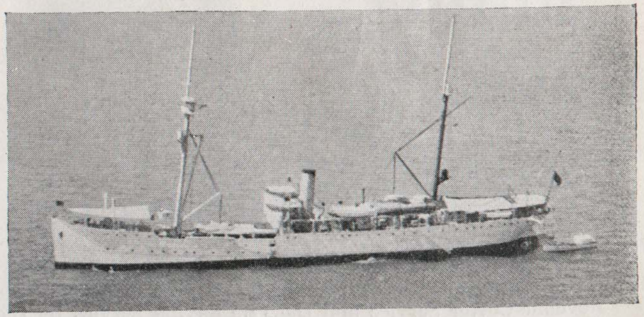
**EIDER, THRUSH** (both built by Pusey & Jones, Wilmington).

**FINCH, HERON** (both built by Standard S. B. Co., N. Y.).

**PENGUIN** (built by New Jersey D. D. & T. Co., Elizabethport).

All built 1918-19. Displacement: 840 tons. Dimensions: 187⅚ (*o.a.*) × 35½ × 8·10 feet (*mean* draught). Guns: 2—3 inch AA. Machinery: 1 set triple expansion and 2 B. & W. boilers. Designed I.H.P. 1400 = 14 kts. Oil fuel only: 275 tons. Complement, 59.

### Surveying Ship.



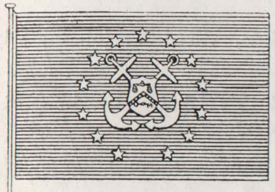
1934 *Photo.*

**HANNIBAL** (ex-S.S. *Joseph Holland*). (Sunderland, 1898). Ex-Fuel Ship. 3550 tons. Dimensions: 274 × 39¼ × 15½ feet. Guns: 1—6 inch, 40 cal., 2—3 inch AA. Complement, 163. H.P. 1100 = 9 kts. Coal: 855 tons.

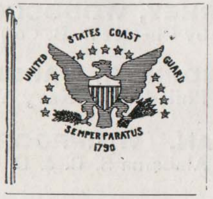
# COAST GUARD.

## Notes.

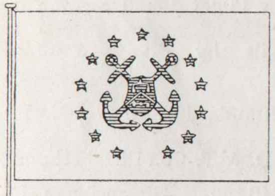
**Officially Revised, 1937, from materials furnished by courtesy of the Commandant, U.S. Coast Guard, Treasury Department, Washington, D.C. Photos also official unless otherwise acknowledged.**



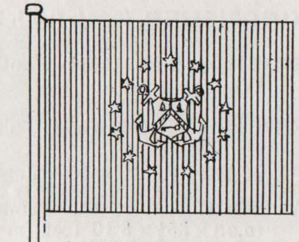
SECRETARY TREASURY



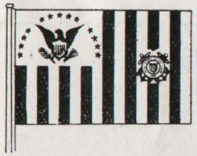
COAST GUARD STANDARD.



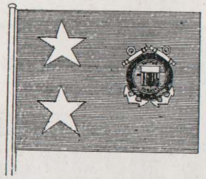
ASST. SECRETARY TREAS.



UNDER SECRETARY TREASURY.



ENSIGN



COMMANDANT'S FLAG.

Red ▥ White ☐ Blue ▤

## I.—ESTABLISHMENT.

The U.S. Coast Guard was established by the consolidation of the Revenue-Cutter Service and the Life Saving Service by the Act of Congress approved 28 January, 1915. This act constituted the Coast Guard as a part of the military forces of the United States, "which shall operate under the Treasury Department in time of peace and operate as a part of the Navy in time of war or when the President shall so direct."

## II.—DUTIES.

1. The Principal duties of the Coast Guard are the enforcement of the maritime laws of the United States and the saving of life and assistance to vessels in distress.
2. Law enforcement duties, performed for all departments of the government, include those relating to customs, movements and anchorage of vessels, immigration, quarantine, neutrality, navigation and other laws governing merchant vessels and motor boats, safety of life on navigable waters during regattas, oil pollution, sponge fisheries, protection of game and the seal and other fisheries in Alaska, protection of bird reservations established by Executive Order and the suppression of mutinies.
3. Life saving and assistance duties include the maintenance of coastal stations and communication lines on the continental coasts of the United States, the conduct of the International Ice Patrol, derelict destruction, winter cruising on the Atlantic coast, the extension of medical aid to fishing vessels, the Bering Sea Patrol, and flood relief work. In its humanitarian duties the Coast Guard renders aid and assistance to vessels in distress irrespective of nationality and extends its protection, if needed, to all shipping within the scope of its operations.
4. In time of war the Coast Guard operates as a part of the Navy. A military organization was adopted at the time the service was established in 1790, before the establishment of the Navy Department. This organization has been continued since that date for the purpose of maintaining the general efficiency of the operation of the service in its law enforcement duties in time of peace. The executive action under which the Coast Guard operates as a part of the Navy in time of war is similar in effect to a measure of mobilization. In this respect the Coast Guard is a potential reserve force for the Navy. No personnel are normally assigned or equipped as land troops. Vessels are prepared in emergencies to equip landing forces with small arms and machine guns; stations are similarly prepared to undertake emergency police duties in a more limited sense, because of the smaller units involved, but in both cases these duties would be incidental to the primary purpose of the service, the enforcement of civil law and the saving of life and property.

## III.—ADMINISTRATION.

*Secretary of the Treasury:* The Honorable Henry Morgenthau, Jun.
*Assistant Secretary of the Treasury**: The Honorable Stephen B. Gibbons.
*Headquarters*: (Washington, D.C.)
*Commandant*: Rear-Admiral R. R. Waesche.

* The Assistant Secretary has immediate supervision of the Coast Guard.

## IV.—ORGANIZATION.

(*a*) The United States and its coastal waters are divided into nine divisions, each being under the command of a division commander operating directly under Coast Guard Headquarters in Washington. These divisions in turn include thirteen districts for the operation of 241 Coast Guard (Life Saving) Stations and the vessels and shore establishments assigned.

(*b*) The following training, repair, and supply establishmen are maintained:

(1) Coast Guard Academy, New London, Connecticu Four year course for cadets (entry by competiti examination).
(2) Coast Guard Receiving Unit and the Coast Gua Institute, New London, Connecticut. Training a educational courses for enlisted ratings.
(3) Coast Guard Depot, Curtis Bay, Maryland. Co struction of life-boats, etc. Repair of vessels.
(4) Coast Guard Stores, Brooklyn, New York, and S Francisco, California. Supply depots for ships a stations.

## V.—PERSONNEL.

(Total authorised complement: 10,070.)
Ranks: Rear Admiral (1).
Engineer-in-Chief (Ranks as Captain) (1).

| | Line | Engineering | Constructor | Distri Com mand |
|---|---|---|---|---|
| Captain .. .. .. | 23 | 8 | — | — |
| Commander .. .. .. | 43 | 16 | 1 | — |
| Lieutenant Commander .. | 81 | — | 2 | 7 |
| Lieutenant .. .. .. | 163 | — | 2 | 7 |
| Lieut. (j.g.) & Ensign .. | 234 | — | — | — |

Professors: 5 (ranks from Lieut. to Commander)
Chief Warrant Officers: 164. Warrant Officers: 410.
Petty Officers and Men: 8,902. (Enlist for three years; pay U.S. Navy.)

## VI.—VESSELS.

The vessels in commission on 1 July, 1937, consisted of 36 cruisin cutters, 13 harbour tugs, 17 165 ft. patrol boats, 32 125 f patrol boats, 9 80 ft. patrol boats, 51 75 ft. patrol boat 2 72 ft. patrol boats, 2 65 ft. patrol boats, 8 miscellaneou patrol boats, 7 special craft, 100 picket boats and abou 1,900 life, station and small boats of various types.

## VII.—AVIATION.

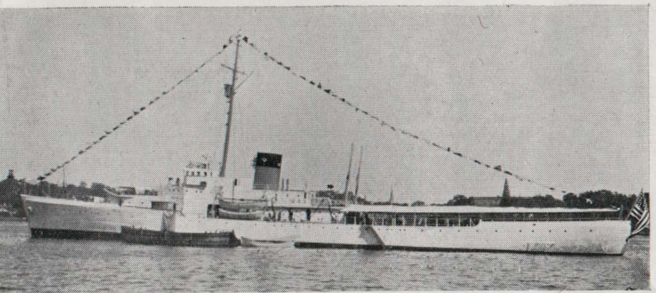
Air Stations in commission: 8. Location: Salem, Mass Charleston, S.C.; Cape May, N.J.; Miami, Fla.; St. Petersbur Fla.; Biloxi, Miss.; San Diego, Calif.; and Port Angeles, Was

Air Stations under construction: 1. Location: New Yor N.Y.

Air Patrol Detachments: 1. Location: El Paso, Texas.
Planes in commission, 1 July, 1936—46.

13 Grumman amphibians, Model JF–2.
11 Douglas amphibians, Model RD–4.
5 General Aviation Flying boats, Model FLB.
1 Vought Corsair landplanes, Model O2U–2.
1 Consolidated landplane, Model YIPT.
1 Northrop transport landplane, Model RT–1.
1 Stinson landplane, Model RQ–1.
1 Lockheed transport landplane, Model R30–1.
3 Waco convertible land-seaplanes, Model J2W.1
5 Viking flying boats, Model 00–1.
4 Fairchild convertible land-seaplanes, Model J2K.
7 Hall flying boats, Model PH2.

### Cruising Cutters.



Geo. W. Campbell. 1937, *Hr. Registrator Ossi Janson.*

| | |
|---|---|
| **GEORGE W. CAMPBELL** .. | *Stapleton, N.Y.* |
| **SAMUEL D. INGHAM** .. .. | *Port Angeles, Wash.* |
| **WILLIAM J. DUANE** .. .. | *Oakland, Calif.* |
| **ROGER B. TANEY** .. .. | *Honolulu, T.H.* |

l laid down May 1, 1935 at Philadelphia Navy Yard and launched June 3, 1936, except *Taney*, Oct. 24, 1936.

| | |
|---|---|
| **ALEXANDER HAMILTON** .. | *Oakland, Calif.* |
| **JOHN C. SPENCER** .. .. | *Cordovà, Alaska* |

oth laid down at New York Navy Yard, Sept. 11, 1935, and launched Jan. 6, 1937.

**EORGE M. BIBB.** Laid down at Charleston Navy Yard, Aug. 15, 1935, and launched Jan. 14, 1937. *Standard* displacement: 2,000 tons. Dimensions: 308 (*w.l.*), 327 (*o.a.*) × 41 $11\frac{1}{2}$ feet (*mean* draught), $12\frac{1}{4}$ feet (*max.*) Guns: 2—5 inch, 2—3 inch AA., 2—6 pdr. (with provision for mounting 2 extra 5 inch if needed). To carry 1 Seaplane in deck hangar. Westinghouse geared turbines. 2 shafts. S.H.P.: 6,200 = 20 kts. 2 wt. boilers. Fuel: 572 tons. Feed water: 143 tons, fresh water: 109 tons. Cruising radius: 8,000 miles at 12·5 kts.

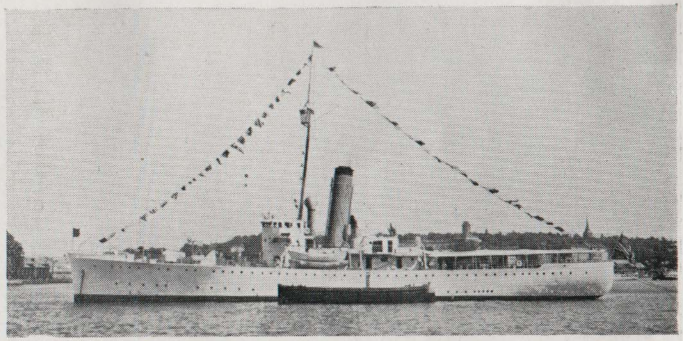
### Cruising Cutters—*continued.*

Comanche. 1935, *Official.*

| *Name.* | *Station.* | *Name.* | *Station.* |
|---|---|---|---|
| **ALGONQUIN** | *Portland, Me.* | **ONONDAGA** | *Astoria, Oregon* |
| **COMANCHE** | *Stapleton, N.Y.* | **TAHOMA** | *Cleveland, Ohio* |
| **MOHAWK** | *Cape May, N.J.* | **ESCANABA** | *Grand Haven, Mich.* |

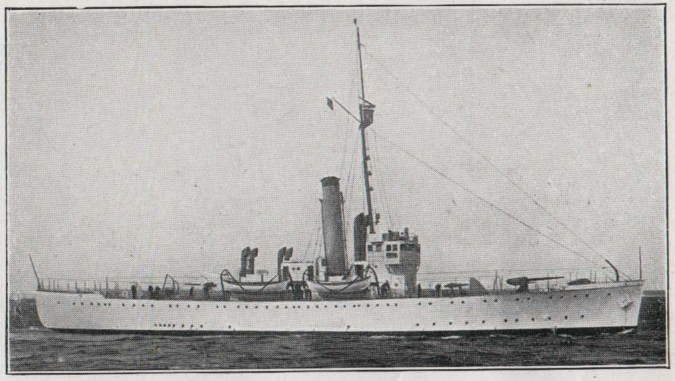
All launched 1934 except *Escanaba*, 1932. Steel, strengthened for icebreaking. First 3 built by Pusey & Jones Corpn., Wilmington, Del., second 3 by Defoe Works, Bay City, Mich. Displacement: 1,005 tons. Complement: 60. Dimensions: 165 (*o.a.*) × 36 × $13\frac{1}{3}$ feet. Guns: 2—3 inch, 50 cal., 2—6 pdr. Machinery: Turbines with double reduction gear. S.H.P: 1,500 = 13·5 kts. Radius: 5,000 miles. Approximate average inclusive cost, $584,000 each. These ships are reported to be very successful in service, making good headway through ice nearly 2 feet thick.

### Cruising Cutters—*continued.*



Cayuga. 1937, *Hr. Registrator Ossi Janson.*

**CAYUGA.** *Boston, Mass.* Built at Staten Island, N.Y., 1932. Steel. Displacement: 1,975 tons. Dimensions: 250 (*o.a.*) × 42 × 16 feet. Turbo-Electric engines (1 main, 2 auxiliary). H.P. 3,220 = 16 kts. Guns: 1—5 inch, 1—3 inch AA., 2—6 pdrs. (Being rearmed with 2—5 inch). Radius: 8,000 miles.



Chelan. 1929 *Photo.*

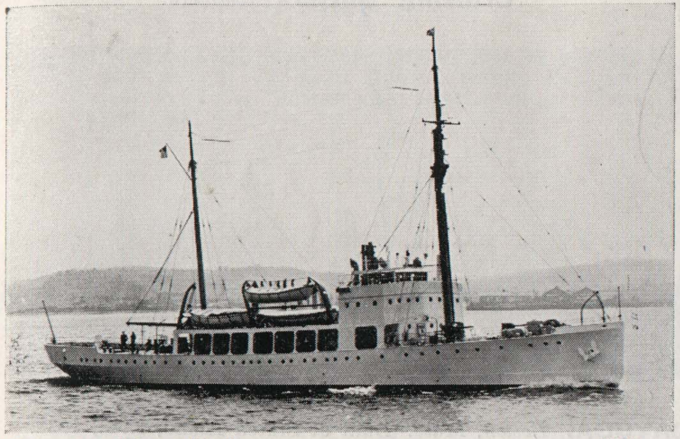
| *Name.* | *Station.* | *Name.* | *Station.* |
|---|---|---|---|
| **ITASCA** | *San Diego, Calif.* | **CHELAN** .. | *Seattle, Wash.* |
| **SEBAGO** .. | *Norfolk, Va.* | **CHAMPLAIN** | *Stapleton, N.Y.* |
| **SARANAC** | *Galveston, Texas* | **MENDOTA** .. | *Norfolk, Va.* |
| **SHOSHONE** | *Oakland, Calif.* | **PONTCHARTRAIN** | *ditto.* |
| | | **TAHOE** .. | *San Francisco, Cal.* |

Built 1930 by Gen. Eng. & Dry Dock Co., Oakland.

Built 1928–29 by Bethlehem Shipbuilding Corporation at Quincy, Mass.

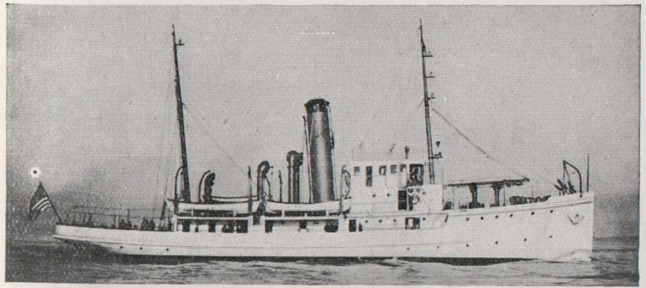
All similar to *Cayuga* above.

### Cruising Cutters—*continued.*



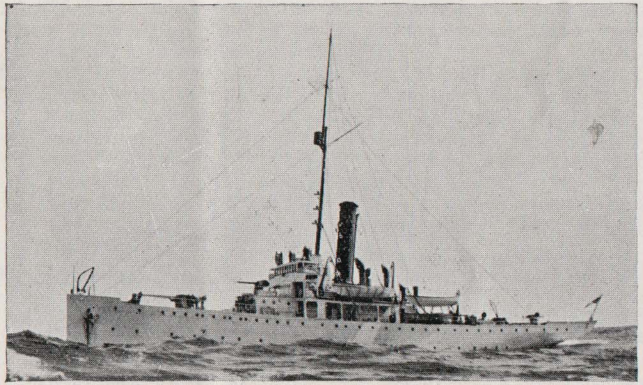
NORTHLAND. (Rig modified). 1936.

**NORTHLAND** (Newport News Shipbuilding Co., 1927). Built of steel, hull being of exceptionally massive construction, to withstand ice pressure. Forefoot cut away to above w.l. Displacement: 2065 tons. Dimensions: 216 (*o.a.*) × 39 × 15 feet (*mean* draught). Two 6-cyl. 4-cycle Diesel engines with electric drive. Total B.H.P. 1200 = 11 kts. 1 screw. Guns: 2—6 pdr. For Bering Sea Patrol. (*Seattle, Wash.*)



**SHAWNEE** (1922). Steel. 900 tons. Dimensions: $158\frac{1}{4} \times 30 \times 14$ feet. Guns: 2—1 pdr. Built by Union Con. Co., Oakland, Cal. (*Eureka, Calif.*)

### Cruising Cutters—*continued.*



TAMPA.

| *Name.* | *Station.* |
|---|---|
| **HAIDA** | *Juneau, Alaska.* |
| **MODOC** | *Wilmington, N.C.* |
| **MOJAVE** | *Fort Lauderdale, Fla.* |
| **TAMPA** | *Mobile, Ala.* |

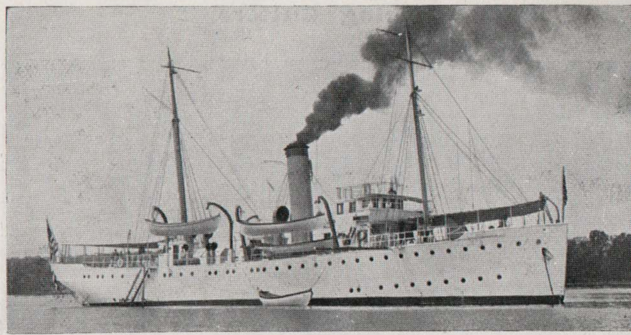
All built 1921. Steel, 1 screw. 1780 tons. Dimensions: $240 \times 39 \times 16\frac{1}{2}$ feet. Guns: 2—5 inch, 1—3 inch AA., 2–6 pdr. S.H.P. 2600 = 15 kts. Machinery: Turbo-electric (General Electric Curtis Turbine).

All built by Gen. Eng. & Dry Dock Co., Oakland, Cal.

(*For appearance, v. photo under "Auxiliaries—Mine Sweepers," in U.S. Navy Section.*)

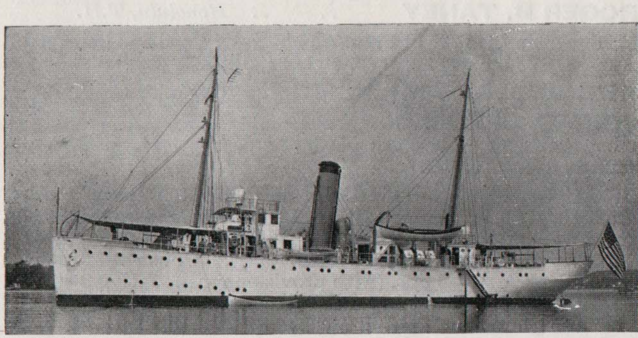
**REDWING** (1919.) Ex-Navy Minesweeper, taken over 1924. Steel, 1 screw. 1215 tons. Dimensions: $187\frac{5}{6} \times 35\frac{1}{2} \times 12\frac{1}{2}$ feet (*mean* draught). Speed: 12·8 kts. Guns: 2—3 inch, 23 cal., 2—1 pdr. (*Port Angeles, Wash*).

### Cruising Cutters—*continued.*



1920 ***Photo.***

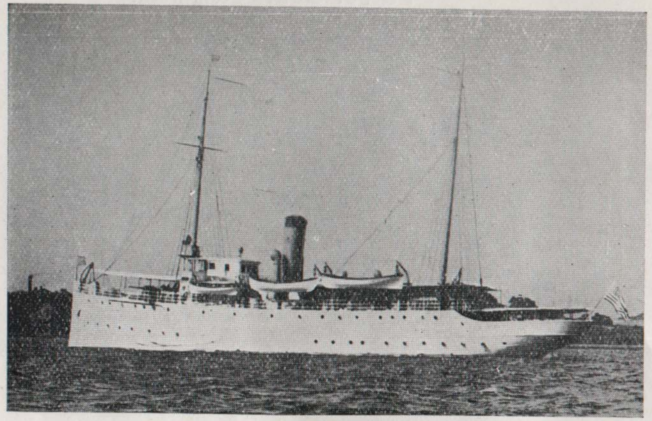
**OSSIPEE** (1915). Steel, 1 screw. 997 tons. Dimensions $165\frac{5}{6} \times 32 \times 11\frac{3}{4}$ feet. Speed: 12 kts. Guns: 2—3 inc 2—6 pdr., 2—1 pdr. Strengthened for ice navigatio (*Sault Ste. Marie, Mich.*).



1920 *Photo.*

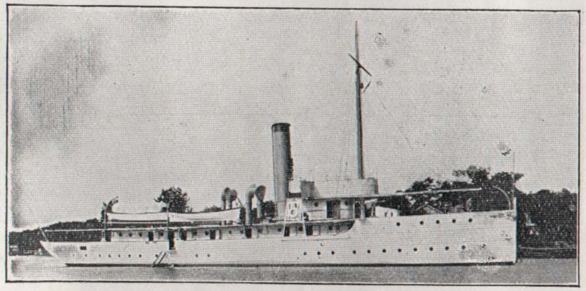
**TALLAPOOSA** (1915). Steel, 1 screw. 964 tons. Dime sions: $165\frac{3}{4} \times 32 \times 11$ feet. Speed: 11·8 kts. Oil fu only. Guns: 2—3 inch, 50 cal., 2—6 pdr. (*Junea Alaska*).

## Cruising Cutters—*continued.*



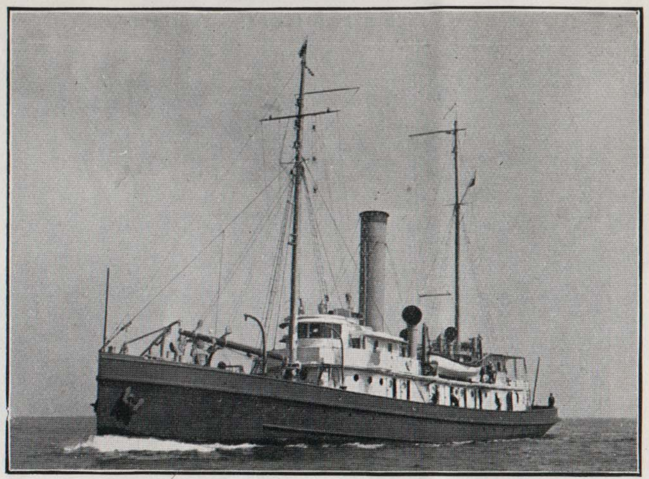
1919 *Photo, U.S. Navy Publicity Bureau.*

**UNALGA** (1912). Steel, 1 screw. 1181 tons. Dimensions: 190 × 32½ × 14 feet. Speed: 12 kts. Guns: 2—6 pdr. (*San Juan, Puerto Rico*).



**PAMLICO** (1907). Steel, twin screw. 451 tons. Dimensions: 158 × 30 × 5⅔ feet. Speed: 9·3 kts. Guns: 2—6 pdr. (*Newbern, N.C.*)

## Special Craft.



PEQUOT *Photo added 1927.*

**PEQUOT** (ex-Minelayer *General Samuel M. Mills*, built 1909, transferred from War Department 1922). Steel, 1 screw. 950 tons. Dimensions: 166½ × 32½ × 11⅓ feet. 12 kts. (*Boston, Mass.*)

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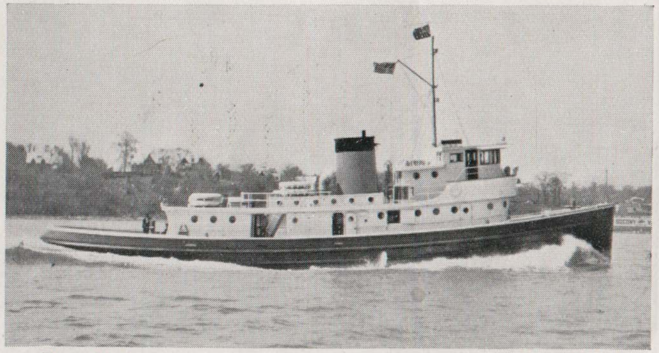
## Harbour Craft—Tug Type (15).

Detailed to larger Maritime Ports to enforce Customs and Navigation Laws and the regulation of the anchorage and movements of vessels.



TUCKAHOE. 1935, *Official.*

***Calumet, Navesink, Tuckahoe,*** (Built at Charleston Navy Yard.) ***Hudson*** (Built at Portsmouth Navy Yard). All launched 1934. Steel. Displacement: 290 tons. Dimensions: 110½ × 24 × 10½ feet. Diesel engines. 1 shaft. H.P.: 800 = 12 kts. Radius: 2,000 miles. (*New York*).

## Harbour Craft—*continued.*

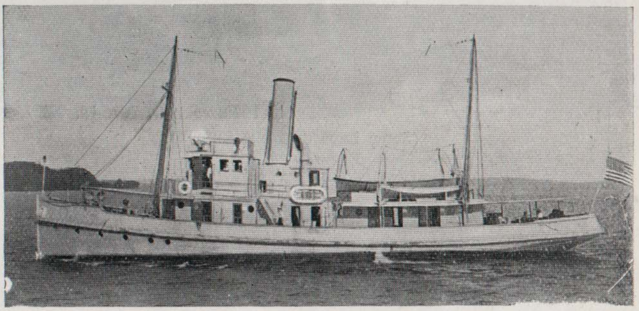
***Davey*** (1908). Steel, 1 screw. 182 tons. Dimensions: 92½ × 19 × 10⅙ feet. Guns: *Nil.* Speed: 10·5 kts. (*New Orleans, La.*)

***Golden Gate*** (1896). Steel, 1 screw. 240 tons. Dimensions: 110 × 20½ × 9⅚ feet. Speed: 11 kts. (*San Francisco*).

***Guard*** (1914). Wood. 52 tons. Dimensions: 67 ft. 7 in. × 12½ × 6¼ feet. Speed: 10 kts. (*Seattle, Wash.*)

***Guthrie*** (1895). Iron, 1 screw. 149 tons. Dimensions: 88 × 17½ × 9 feet. Speed: 11 kts. (*Boston.*)

***Mackinac*** (1903). Steel, 1 screw. 241 tons. Dimensions: 110 × 20½ × 10½ feet. Guns: None. Speed: 12 kts. (*Portland, Me.*)



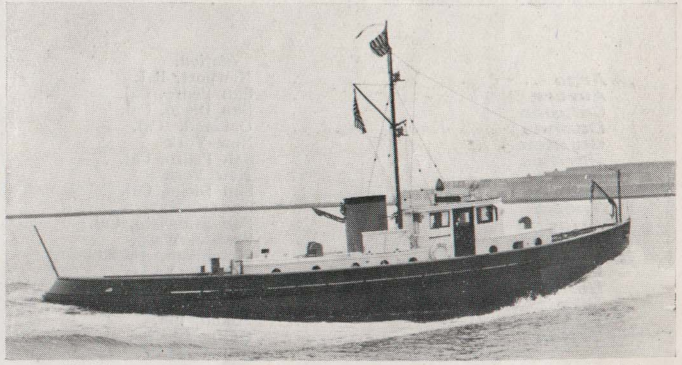
MANHATTAN. 1931 *Photo.*

***Manhattan*** (1918). Steel, 1 Screw. Ice Breaker, Salvage Vessel, Tug and Fire Float. 406 tons. Dimensions: 120¼ × 24 × 11¾ feet. Speed: 9·5 kts. Guns: 2—1 pdr. (*New York, N.Y.*)

***Raritan*** (1905). Steel. 1 screw. 241 tons. Dimensions: 103 × 22 ft. 8 in. (*New York, N.Y.*) 12 kts.

***Tioga*** (1916). Steel. 131 tons. Dimensions: 89 × 20 × 8¾ feet. Speed: 10 kts. (*New York.*)

***Winnisimmet*** (1903). Steel, 1 screw. 182 tons. Dimensions: 96½ × 20½ × 9 feet. Speed: 12 kts. (*Baltimore.*)

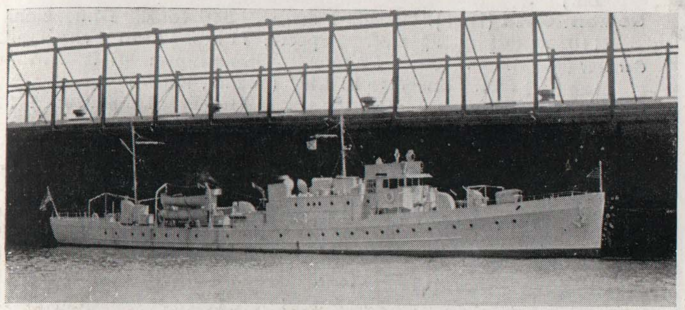


AB 26. 1937 *Official.*

***A.B. 25, 26*** (Boston, Mass., 1936). Wood, sheathed. Displacement: 72 tons. Dimensions: 63½ × 19 × 5 feet. Diesel engine. 1 shaft. H.P.: 300 = 10 kts.).

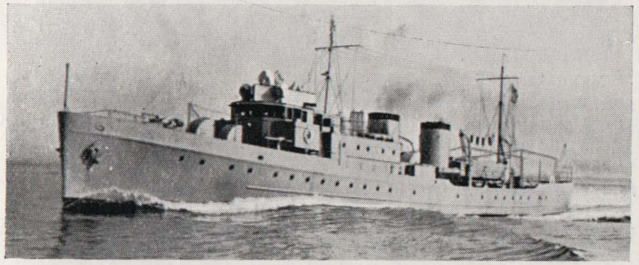
There are also 40 anchorage and boarding vessels, known as AB. boats and bearing numbers with the prefix AB, from 1 to 63, employed on harbour duties.

## Patrol Boats.



ICARUS. 1936, *courtesy Mr. W. H. Davis.*

(Some have only one funnel.)



ARGO. 1933 *Photo.*

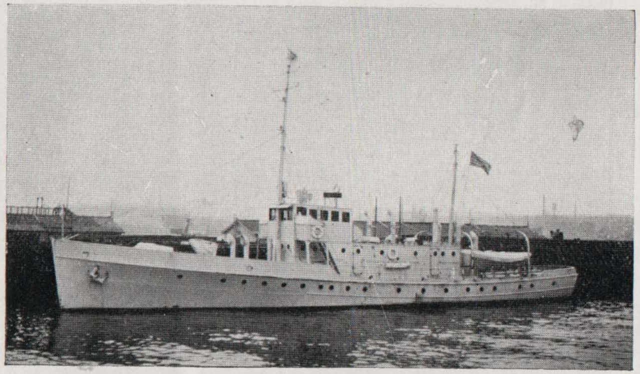
17—165 ft. steel Patrol Boats.

| | *Station.* |
|---|---|
| ***Argo*** | Newport, R.I. |
| ***Aurora*** | San Pedro, Cal. |
| ***Calypso*** | San Diego, Cal. |
| ***Daphne*** | Oakland, Cal. |
| ***Galatea*** | New York |
| ***Hermes*** | San Pedro, Cal. |
| ***Icarus*** | New York |
| ***Perseus*** | San Diego, Cal. |
| ***Thetis*** | Boston, Mass. |
| ***Ariadne*** | San Francisco, Cal. |
| ***Atalanta*** | Seattle, Wash. |
| ***Cyane*** | Ketchikan, Alaska |
| ***Dione*** | Norfolk, Va. |
| ***Nemesis*** | St. Petersburg, Fla. |
| ***Nike*** | Pascagoula, Miss. |
| ***Pandora*** | Miami, Fla. |
| ***Triton*** | Gulfport, Miss. |

Built during 1931–34. 337 tons. Dimensions: 165 × 25¼ × 8½ feet. Guns: **1**—3 inch, 23 cal., **2**—1 pdr. Winton Diesel engines. 2 shafts in some, 1 in others. H.P.: 1,300 = 16·5 kts.

*Note.—Electra,* of this class, renamed *Potomac* and converted into Presidential Yacht.

## Patrol Boats—*continued.*

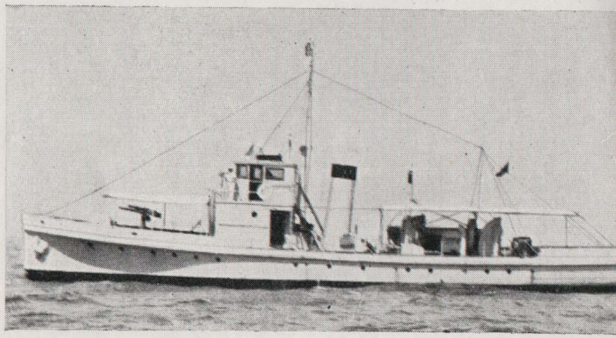


1931 *Photo.*

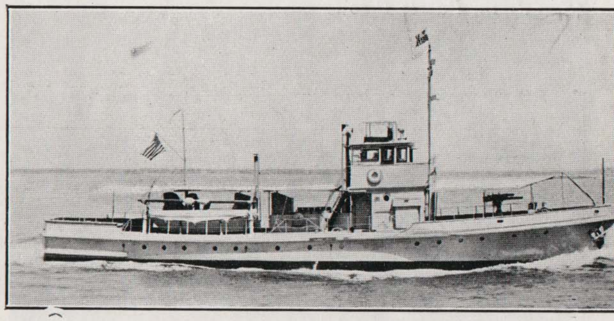
27—125 ft. steel Patrol Boats: ***Active, Alert, Antietam, Cahoone, Cartigan, Colfax, Crawford, Diligence, Dix, Ewing, Faunce, Frederick Lee, General Greene, Harriet Lane, Jackson, Kimball, Legare, Marion, Morris, Pulaski, Reliance, Rush, Tiger, Travis, Vigilant, Woodbury, Yeaton.***

(1926-27). Displacement: 220 tons. Dimensions: 125 × 23½ × 6¾ feet. Guns: **1**—3 inch, 23 cal. Speed: 14 kts. Are being re-engined, and after refit may vary considerably from original appearance, with a heavier funnel.

## Patrol Boats—*continued.*



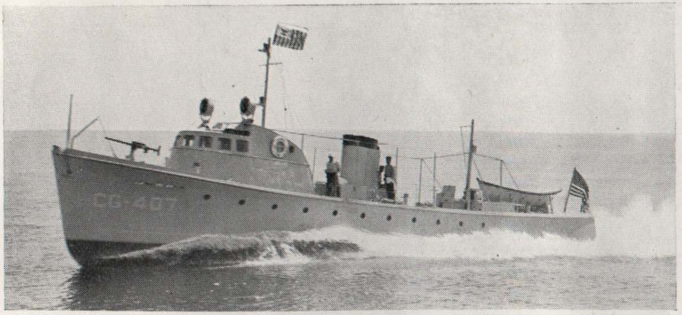
FORWARD. 1934 *Photo, Official.*



PETREL. 1929 *Photo.*

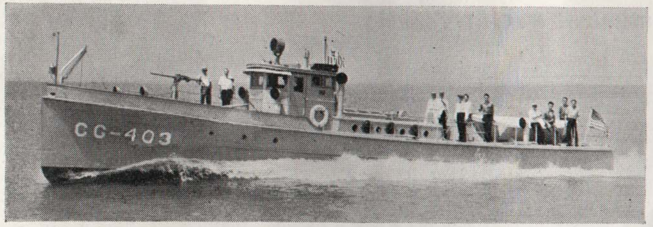
4—100 ft. steel Patrol Boats: ***Forward, Nansemond, Perry, Pet***
(Defoe Boat & Motor Works, Bay City, Mich., 1925–
Displacement: 210 tons. Dimensions: 99⅔ × 23 × 8 f
Guns: **1**—3 inch, 23 cal. Diesel engines. 2 shafts. Spe
10 kts.

### **Patrol Boats**—*continued.*



1937 *Official.*

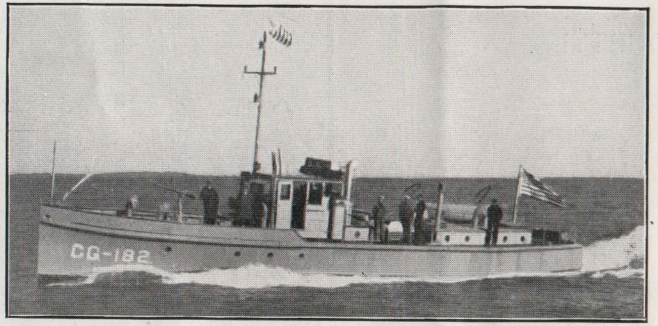
9—80 ft. Patrol Boats : **CG** 406—414. (Jacksonville, Fla. and Terminal Island, Calif, 1937). Wood. Displacement : 52 tons. Dimensions : $80\frac{3}{4} \times 15\frac{2}{3} \times 4$ feet. Guns : **1**—1 pdr. 4 petrol engines. 2 shafts. H.P. : 1,600 = 25 kts.



1932 *Photo.*

6—78 ft. Patrol Boats : **CG** 400—405. (Newport News, 1931). (*West Coast and Honolulu*). Wood. Displacement : 43 tons. Guns : **1**—1 pdr. H.P. : 1,070 = 21·7 kts.

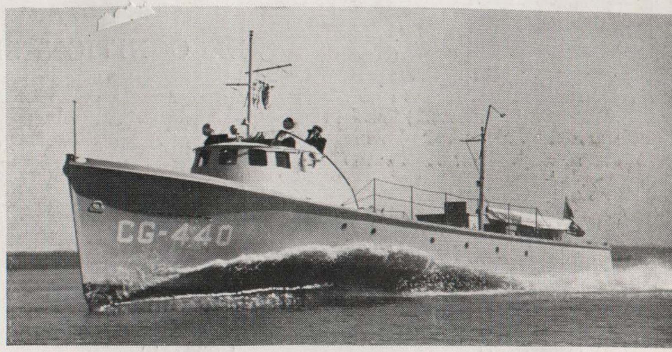
### **Patrol Boats**—*continued.*



CG 182. *Photo added* 1927.

51—75 ft. Patrol Boats : **CG**—100 to **CG**—302. (1924–25). Wood. Displacement : 37 tons. Dimensions : $75 \times 13\frac{3}{4} \times 4$ feet. Petrol engine. 13·5 kts. Guns : **1**—1 pdr.

### **Patrol Boats**—*continued.*

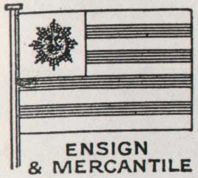


1937 *Official.*

2—72 ft. Patrol Boats : **CG** 440, 441. (Annapolis, Md., 1937). Wood. Displacement : 27 tons. Dimensions : $72 \times 14\frac{1}{6} \times 3\frac{3}{4}$ feet. 4 petrol engines. 2 shafts. H.P. : 1,600 = 34 kts.

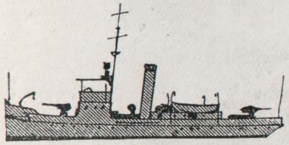
(Of similar appearance to *CG* 440).

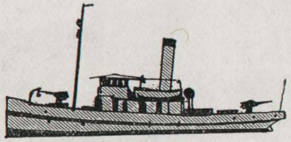
2—65 ft. Patrol Boats : **CG** 442, 443. (Long Beach, Calif., 1937). Wood. Displacement : 30 tons. Dimensions : $65 \times 14 \times 3\frac{3}{4}$ feet. 4 petrol engines. 2 shafts. H.P. : 1,600 = 28 kts. (*San Francisco*).

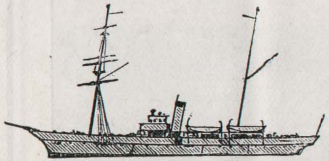

ENSIGN & MERCANTILE

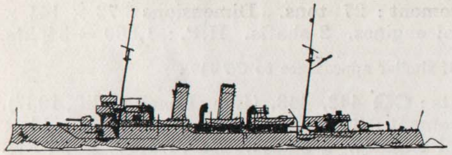
# URUGUAY.

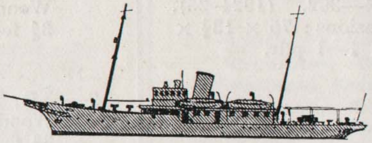
## RECOGNITION SILHOUETTES.

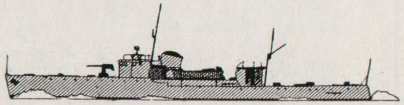

Vanguardia.


Corsario.


18 de Julio.


Uruguay.


Capitan Miranda.


Paysandu.

---

*Minister of War and Marine :* General Domingo Mendivil

*Director of Navy :* Rear-Admiral Arturo Juambeltz. *Personnel :* 930.

*Mercantile Marine :* (From "Bureau Veritas") 49 vessels of 30,562 tons *gross.*

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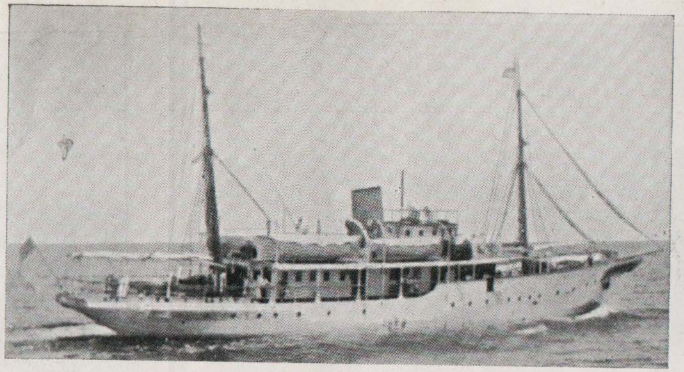
### Ports, Yards, &c.

**MONTEVIDEO.**—There is a fort here, but only for returning salutes. The National Dock (Dique Naçional) is operated by the Naval Authorities. Length, 459 feet. Breadth, 55 feet. Maximum depth, 17 feet. Steam and electric pumps can empty dock in eight hours. Dique Mauá (south of city) is property of Monte Video Gas Co. Dimensions: 272 × 50 × 12 feet 4 inches to 15 feet 2 inches. Has 2 steam pumps and 25 ton crane, also fixed and moving cranes. The firm Varadero del Cerro have a yard, well equipped for repairs, with a small slipway. The National Port Administration bought the Varadero Lussich, a repairing yard with a small slipway during 1919.

### Surveying Vessel.


1932 *Photo, Official.*

**CAPITAN MIRANDA** (S.E. de C.N., Matagorda, Cadiz, 1930). 516 tons.
Dimensions : 148 (*p.p.*) × 28 × 10 feet.
1 Diesel (M.A.N.). H.P. 500 = 10·5 kts.
Oil fuel : 45 tons.

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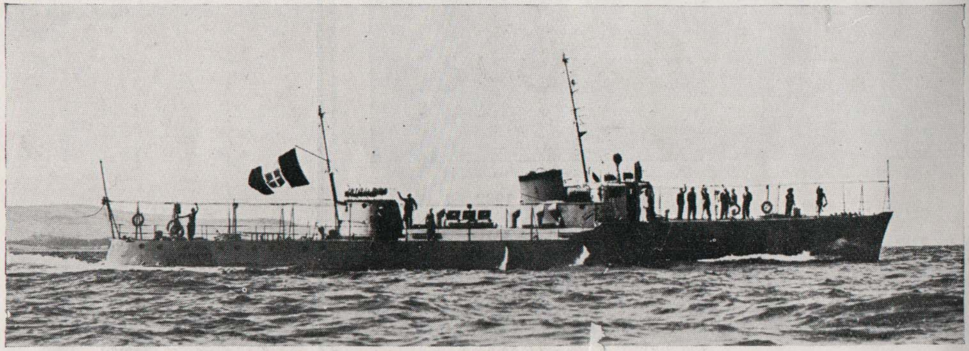
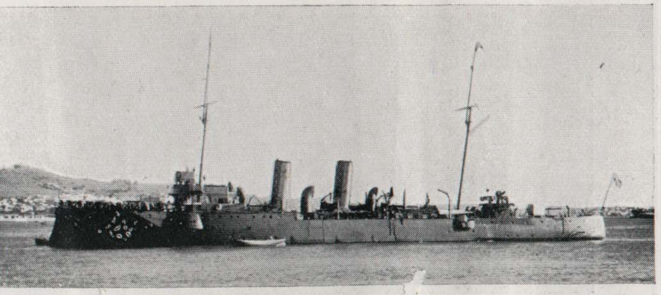
### Coastguard Patrol Vessels.


Paysandu. (Now has 3inch guns mounted on fxle. and q.d.) 1936.

**PAYSANDU** (July 21, 1935), **RIO NEGRO** (Aug. 22, 1935), **SALTO** (Aug. 11, 1935). All built by Cantieri Navali Riuniti, Ancona. *Standard* displacement : 180 tons. Complement, 51. Dimensions : $137\frac{1}{2} \times 19 \times 5\frac{1}{3}$ feet. Guns : 2—3 inch, 2—47 mm. AA., 2 M.G. 2 sets Diesels. B.H.P. 1,000 = 17 kts. Fuel: 18 tons. Radius : 4,000 miles at 10 kts

## Training Ship.

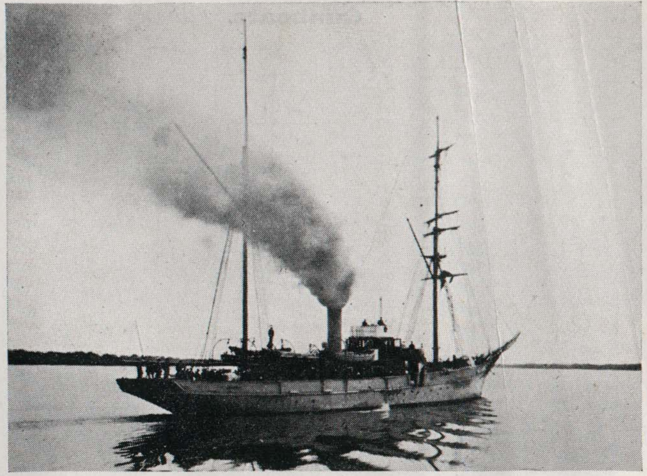


19 6, *Nautical Photo Agency.*

**URUGUAY** (Vulkan, Stettin, 1910). 1150 tons. Complement, 125. Dimensions: $278\frac{3}{4}$ (*p.p.*) × $30\frac{5}{6}$ × 12 feet (*max.* draught). Guns (Skoda): **2**—4·7 inch, 45 cal., **4**—3 inch, **6**—1 pdr. (Vickers), **4** M.G. Torpedo tubes: **2**—18 inch *above water.* Armour: $\frac{2}{3}''$ nickel steel over boilers and engines. 4 Normand boilers. H.P. 8,000 = 23 kts. Coal: 210 tons = 3,000 miles at 10 kts.

*Note.*—Is fitted for service as Training Ship for midshipmen. It is proposed to build a sail Training Ship with auxiliary motor.

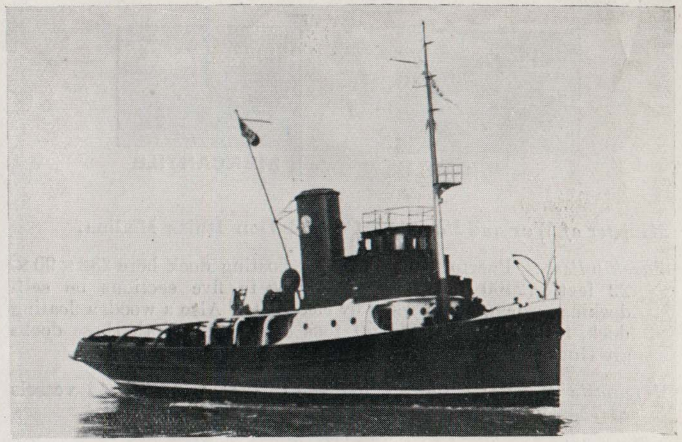
## Training Ship.



1932 *Photo, Official.*

**18 DE JULIO.** (Refitted 1920.) 764 tons. Complement, 85. Dimensions: 194 (*p.p.*) × 26 × 15·5 feet. H.P. 600 = 12 kts. No guns at present. Coal: 140 tons.

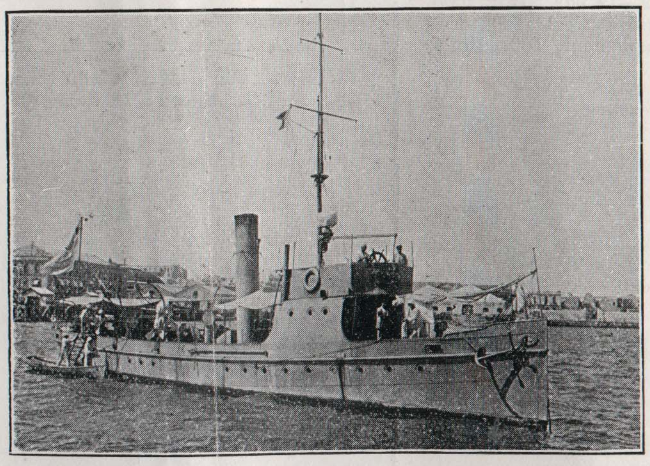
## Tug.



*Added* 1936.

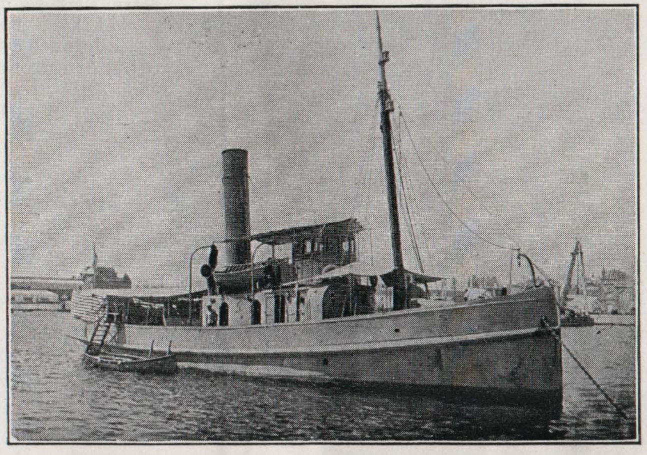
**ARTIGAS** (Cant. Nav. Riuniti, Ancona, 1931). Displacement: 265 tons. Dimensions: $98\frac{1}{4}$ × $26\frac{1}{2}$ × 10 feet. H.P. 500 = 10 kts.

## Tenders.



1918 *Photo, A. J. Carbone.*

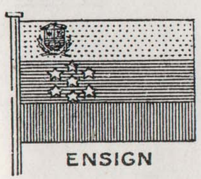
**VANGUARDIA** (Glasgow, 1908). 95 tons. H.P. 200 = 12 kts. Guns: **2**—37 mm.

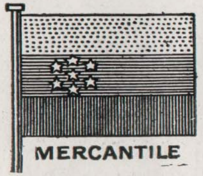


1918 *Photo, A. J. Carbone.*

**CORSARIO.** 130 tons. 10 kts.
Guns: **2**—37 mm.
(Employed on Survey Service, Rio de la Plata).

**VENEZUELA**





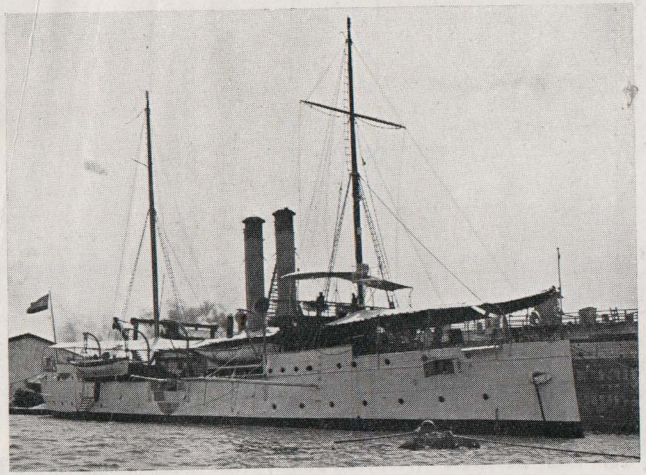
*Minister of War and Marine :* Colonel Don Isaias Medina.

*Warship Port :* Puerto Cabello. Steel floating dock here 282 × 90 × 22 feet. (2400 tons capacity) built in five sections on self-docking system, and worked by electricity. Also a wooden floating dock, 180 × 60 × 19 feet (1200 tons capacity). Both these docks are Government property.

*Mercantile Marine:* ("Lloyd's Register," 1937 figures). 43 vessels of 72,334 gross tonnage.

# VENEZUELA.

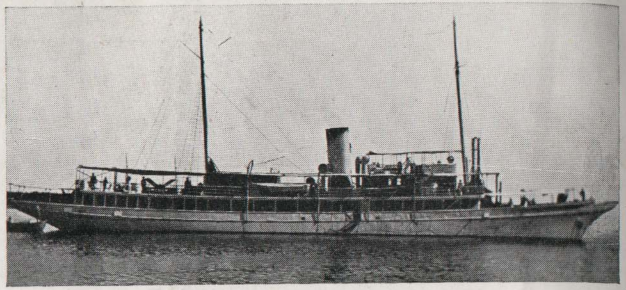
## Gunboats.



1933 *Photo, Official.*

**MARISCAL SUCRE** (ex-Spanish *Isla de Cuba*, 1886, captured by U.S., 1898, and sold to Venezuela, 1912). 1125 tons. Dimensions: 192 × 30 × 12¼ feet (*Mean* draught) 13 feet (*Max.* draught). Guns: 2—4 inch, 2—6 pdr., 4—3 pdr., 2—1* pdr. H.P. 2000 = 11 kts., *max.* continuous speed, 8 kts. Coal: 200 tons. Endurance: 885 miles at 9·5 kts. Complement, 100. Built by Armstrongs.

* 1—1 pdr. transferable to boat mounting.



1933 *Photo, Official.*

**MARACAY.** Purchased 1923. 800 tons. 216 × 26 × 16 feet. No guns at present. I.H.P. 1600 = 12 kts. Radius: 800 miles.

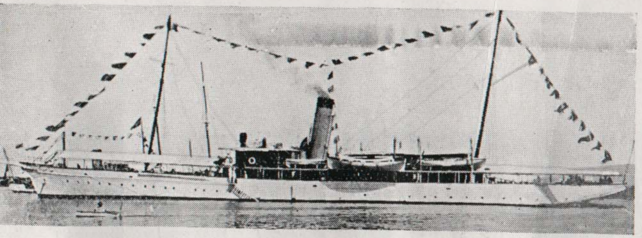
*Photo and particulars wanted.*

**NUEVO DE JULIO.** 60 tons. 1 M.G. Speed: 10 kts.

General Soublette } 2Sr 850т 15у 2-10
General Urdaneta } 7-75

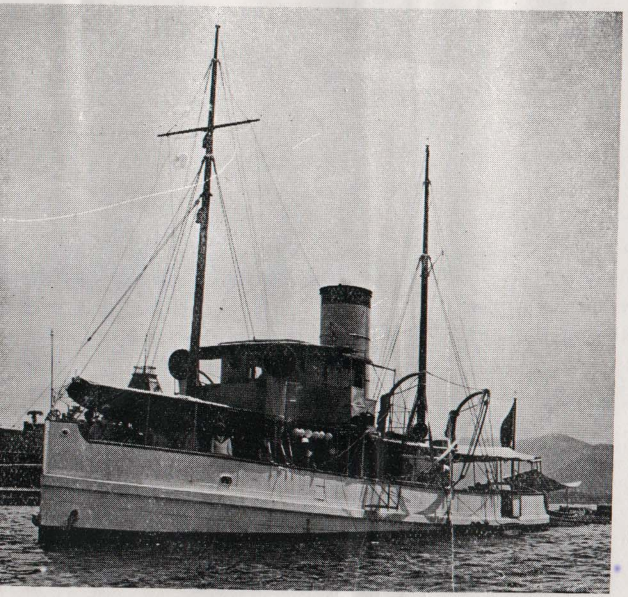
Итал. минзаг.
Тип Milazzo
стр 295

## Gunboats—*continued.*



1933 *Photo, Official.*

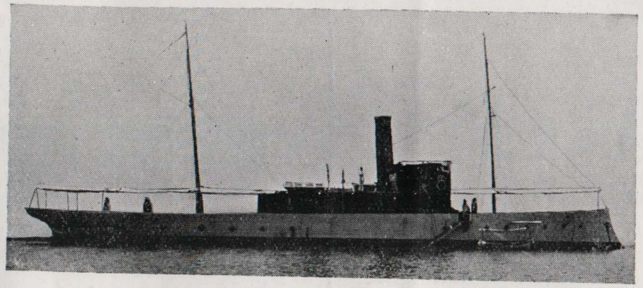
**ENERAL SALOM** (*ex-Restaurador*, purchased 1900; built as U.S. private yacht *Atlanta*, 1884). 750 tons. Dimensions: 240 × 26 × 13 feet (*max.* draught). Guns: **1**—3 inch, **4**—6 pdr., **1** machine. H.P. 1500=12 kts., *max.* continuous speed 8 kts. Coal: 200 tons. Endurance: 1080 miles at 8 kts. Complement, 86.



1933 *Photo, Official.*

**RAGUA** (ex-tug *Caroni*), purchased 1929. 154 tons. 1 M.G. I.H.P. 525=7 kts. 14 tons oil. Complement: 30.

## Gunboats—*continued.*



1933 *Photo, Official.*

**MIRANDA** (Clydebank, 1895; purchased from Spain, 1898). 200 tons. Dimensions: 140 × 17½ × 7½ feet. Guns: **2**—6 pdr. **2**—57 m/m. H.P. 315=10 kts. Coal: 36 tons. Endurance: 850 miles at 8 kts. Complement: 55.

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## Armed Tug.

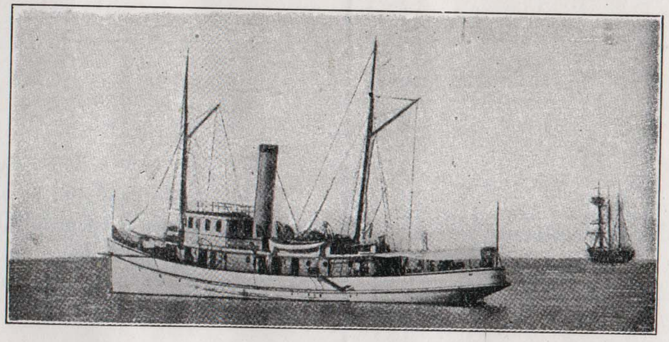
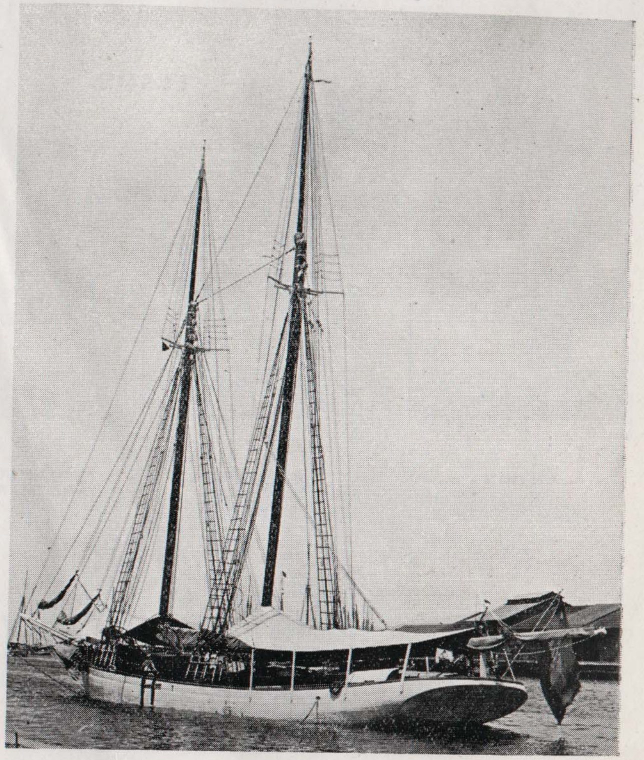


*Photo by favour of Ellis Greu & Co., N.Y.*

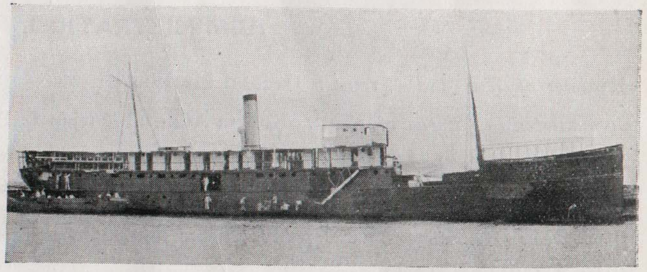
**JOSÉ FELIX RIBAS** (ex-*Zumbador*, built 1894). 300 tons. Dimensions: 127 × 23 × 12 feet. Guns: **2**—6 pdr. Speed, 8 kts. Coal: 60 tons. Endurance: 850 miles. Complement, 55.

## Transports.



1933 *Photo, Official.*

**NARICUAL.** 270 tons. Used as a coal transport.



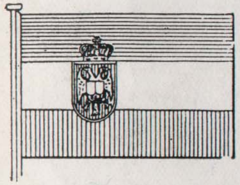
1933 *Photo, Official.*

**ZAMORA.** (1874). 800 tons. 200 × 27 × 12 ft. No guns. 10 kts. Radius: 2000 miles.

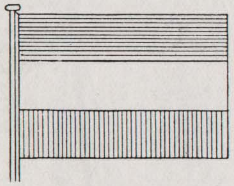
# YUGOSLAVIA.

## FLAGS.

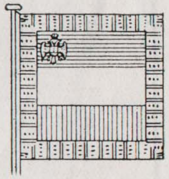
ROYAL STANDARD



ENSIGN

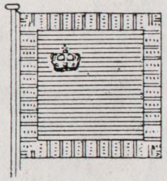


MERCANTILE

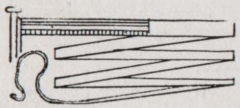


MINISTER OF WAR AND MARINE

Red ▥
White ☐
Blue ▤
Yellow ⬚



ADMIRAL (WITH WHITE CENTRE) VICE-ADMIRAL (WITH RED CENTRE) REAR-ADMIRAL (WITH BLUE CENTRE)



PENDANT

## ADMINISTRATION.

*Minister of War and Marine:* General Mariche

*Commander in Charge of Fleet:* Kontra Admiral Marjan L. Polić.

*Naval Attaché in London:*

*Personnel:* 487 officers. 5,500 petty officers and men.

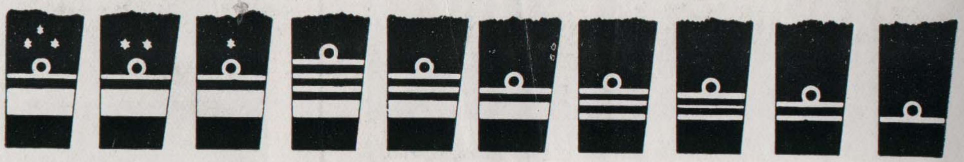
(Reserve)*:* 164 officers. 570 petty officers and men.

*Colour of Ships:* Light grey.

*Mercantile Marine:* From "Lloyd's Register," 1937. 177 vessels of 379,163 gross tonnage.

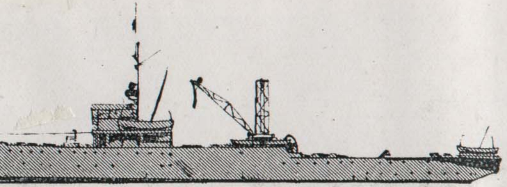
Displacements are "standard."

## UNIFORMS.

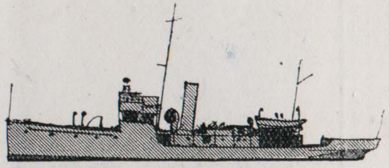

Admiral.
Vice-Admiral.
Kontradmiral.
Rear Admiral.
Kapetan bojnog broda
Captain over 3 years.
Kapetan Fregate.
Captain under 3 years.
Kapetan Korvete.
Commander.
Poručnik bojnog broda. 1 Klase.
Lt.-Commdr.
Poručnik bojnog broda 2 Klase.
Lt. over 4 years.
Poručnik Fregate.
Lt. under 4 years.
Poručnik Korvete.
Sub.-Lt.

*For relative ranks:*

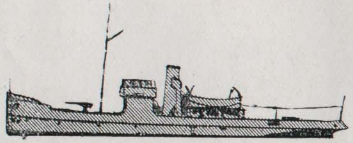
*Engineers* have silver grey between the stripes.
*Paymasters* have red between the stripes.
*Constructors* have purple between the stripes.
*Warrant Officers* have brown between the stripes.
*Surgeons* have an Æsculapius snake on the curl.



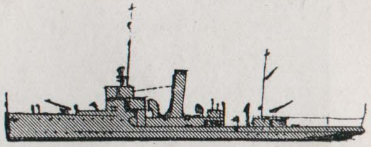
ZMAJ.



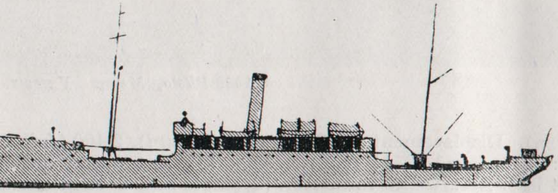
JAKI.



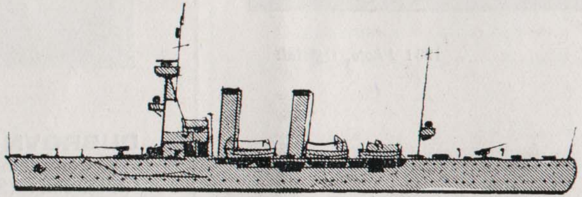
SILNI.



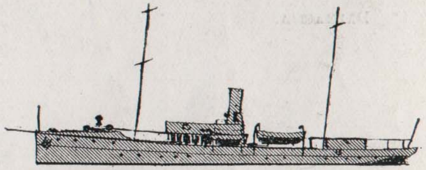
GALEB *class*



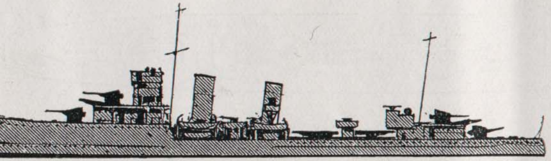
HVAR



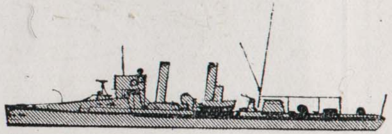
DALMACIJA.



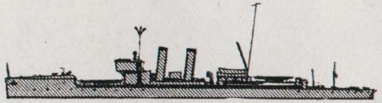
VILA.



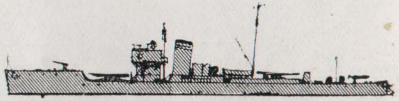
DUBROVNIK.



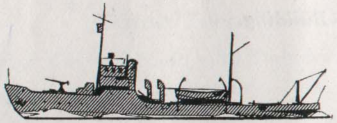
D.2.



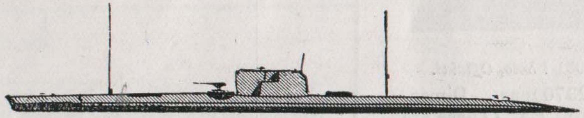
T.5–8.



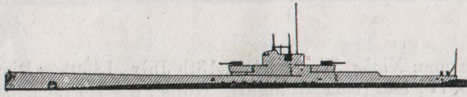
T.1–4.



MARJAN *class.*

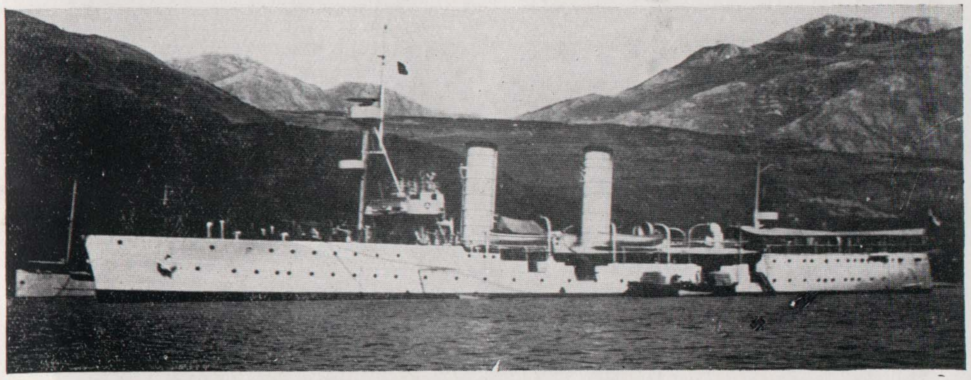


SMELI. OSVETNIK.

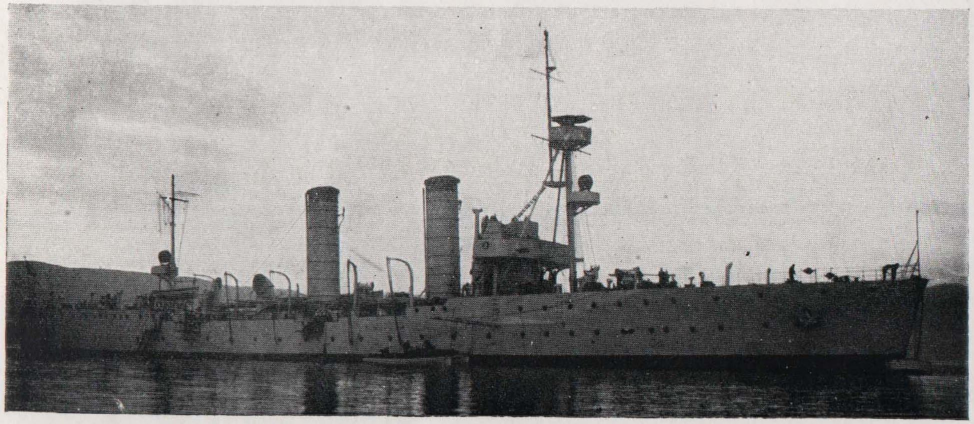


HRABRI. NEBOJSA.

## Cruiser (*Classed as a Training Ship*).



DALMACIJA. 1931 *Photo, Official.*

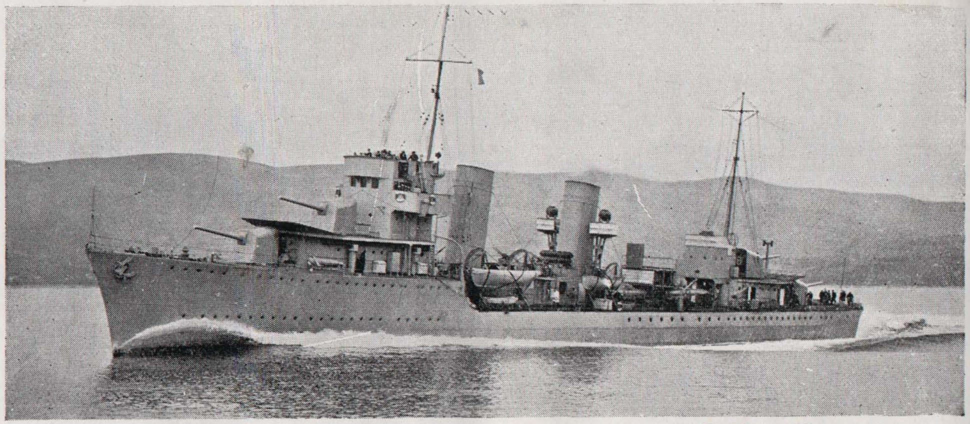


1931 *Photo, Official.*

**DALMACIJA** (ex-German *Niobe*, Weser Yard, 18th July, 1899). Displacement: **2370** tons. Dimensions: 342¼ × 38½ × 17¼ feet (*max.* draught). Guns: **6**—3·4 inch, 55 cal. (87 mm.) AA. (These are guns of a new and powerful Skoda model, with a maximum range of 18,000 yds.) Torpedo tubes: originally carried **2** – 19.7 inch, *above* water. Armour (Krupp): 2″ deck (amidships), ¾″ deck (ends), 3½″ glacis to engine room hatches, 3″ C.T. Machinery: 2 sets 4-cylinder triple expansion, 2 screws. Boilers: 5 Schulz-Thornycroft. Designed H.P. 8000 = 21 kts. Coal, *normal*, 380 tons; *maximum*, 580 tons.

*Note.*—Purchased from German Government in 1926 and underwent extensive refit and alterations at Kotor. Tripod mast fitted 1931.

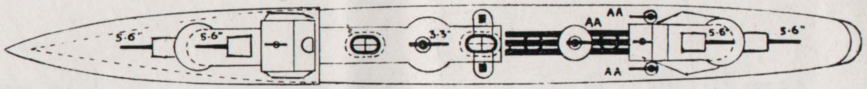
## Flotilla Leader (*Razarač*).



1932 *Photo, Messrs. Yarrow.*

**DUBROVNIK** (Oct. 11, 1931, Yarrow). Displacement: 1,880 tons (*standard*), 2,400 (*full load*) Complement: 200. Dimensions: 345 (*p.p.*). 371½ (*o.a.*) × 35 × 11¾ feet (*mean* draught) Guns: (Skoda) **4**—5·5 inch, 2 3·4 inch AA., 6—40 mm. AA. (2 single and 2 twin mounts) 2 M.G. AA. Tubes: **6**—21 inch. Fitted for minelaying. Machinery: Parsons geared Turbines. 3 Yarrow boilers. S.H.P: 42,000 = 37 kts. Radius: 7,000 miles at economical speed

*Note.*—Designed to meet particular specifications and has proved a fast and economical steamer. Note the position of the AA. guns by after shelter deck, after control position and removal of searchlight from the bridge to athwart second funnel. S.L. platforms are stayed away from funnel to avoid all vibration. She is the first Yarrow destroyer to have a clipper bow.



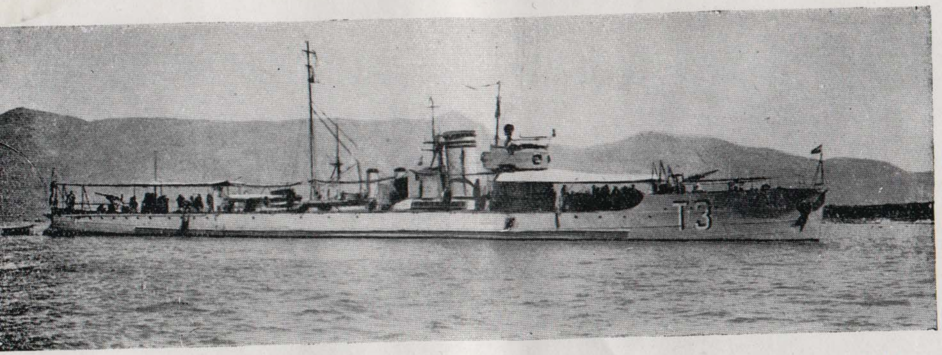
DUBROVNIK.

## Destroyers.

*Building.* в строю 4 шт.

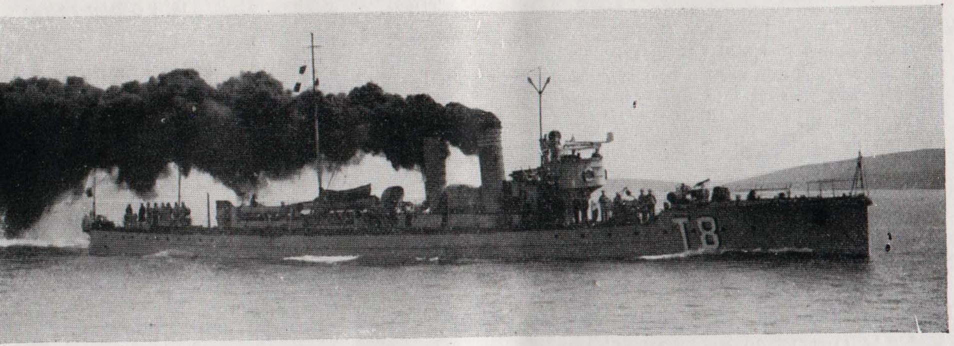
3 *French* type: ***BEOGRAD*** (Dec., 1937). Built by At. et Ch. de la Loire, St. Nazaire. ***LJUBLJANA, ZAGREB,*** One each building at Yarrow Adriatic Yard, Kralyevica, and Loire Yard, Split. Displacement: 1,210 tons. Length: 313 feet. Guns (Skoda): **4**—4·7 inch (paired), **4**—40 mm. AA. Tubes: **6**—21 inch (tripled). Machinery: Parsons geared turbines and boilers by Yarrow. H.P.: 44,000 = 38 kts.

## 8 Torpedo Boats (*Torpiljarke*) (ex-Austrian).



1931 *Photo, Official.*

x-Austrian boats: ***T1—T4*** (ex-*76 T—79 T*, Stab. Tecnico, Trieste 1913-15). Displacement: 262 tons. Fuel: 18 tons coal, 24 tons oil. Dimensions: 188·3 ×18·7 × 4·9 feet.



1931 *Photo, Official.*

Ex-Austrian boats: ***T5–T8*** (ex-*87 F*, *93 F*, *96 F*, *97 F*, Ganz-Danubius Co., Porte Ré, Fiume 1913-15). Displacement: 266 tons, Fuel: 20 tons coal, 34 tons oil.

tails of ***T1—T8.*** Dimensions: 188·3 × 18·7 × 4·9 feet. Guns: **2**—66 m/m. and **1** M.G. Torpedo tubes: 4—18 inch (paired). Designed H.P. (turbines): 5,000 = 28 kts. (24 reported best speed now). Yarrow boilers.

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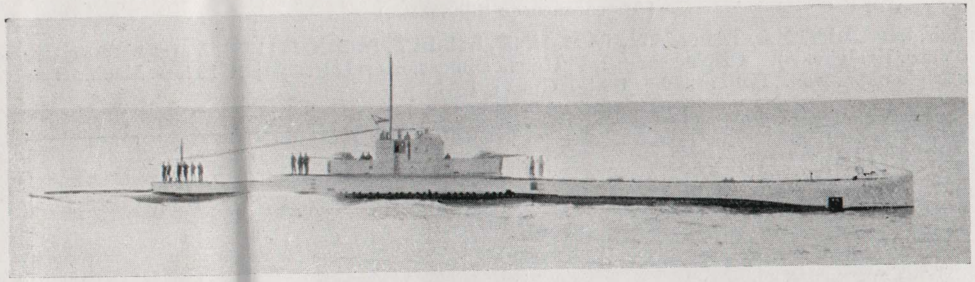
## Motor Torpedo Boats (*Borbeni Camči*).

A number of motor torpedo boats with Daimler-Benz engines, similar in design to the German *Schnellboote*, were ordered in January, 1936, from Friedrich Lurssen Yacht and Bootswerft m.b.H., of Vegesack. All to be delivered in two years. First one named *Orjen*. 8 штук

***Uskok, Cetnik.*** Delivered by Messrs. John I. Thornycroft & Co., Ltd., in May, 1927. Dimensions: 55 × 11 feet. Machinery: 2 Thornycroft motors of 375 H.P. each = 37 kts. *nominal* (40 kts. actually obtained). Auxiliary engine fitted for cruising, equal to 800 miles radius. 2 Lewis guns, 2—18 inch torpedoes. 4 D.C., and smoke floats.

## 4 Submarines (*Podmornice*).

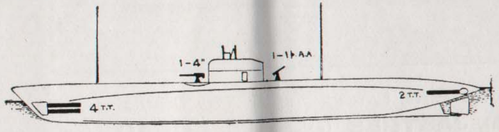


HRABRI. (Showing lowered gun positions).

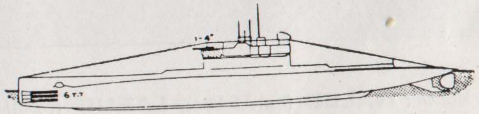
1934, *Mr. D. C. Beatty, Mid. R.N.*

***Hrabri, Nebojsa,*** (Armstrong. 1927). Displacement: $\frac{975}{1164}$ tons. Complement: 45. Dimensions: 236¼ × 24 × 13 feet. H.P.: 2,400/1,600 = $\frac{15\cdot5}{10}$ kts. Armament: **2**—4 inch AA., **6**—21 inch torpedo tubes. Generally similar to British *L* 50 type. Radius 5,000 miles at 9 kts.

Names mean *Gallant* and *Dreadnought.*

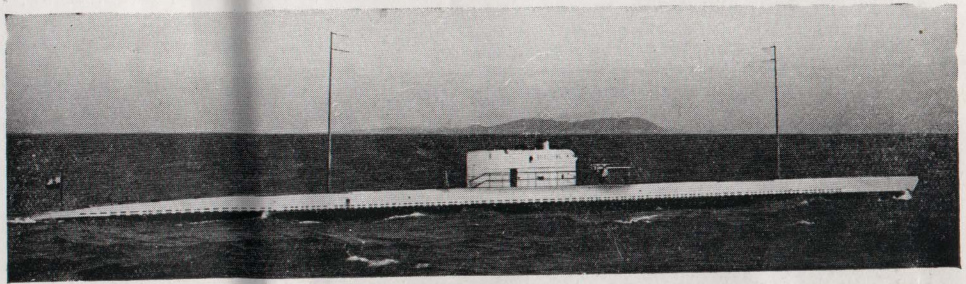


SMELI *class.*



HRABRI *class.*

(Carries a second gun on Conning Tower.)



OSVETNIK.

1930 *Photo, M. Bar.*

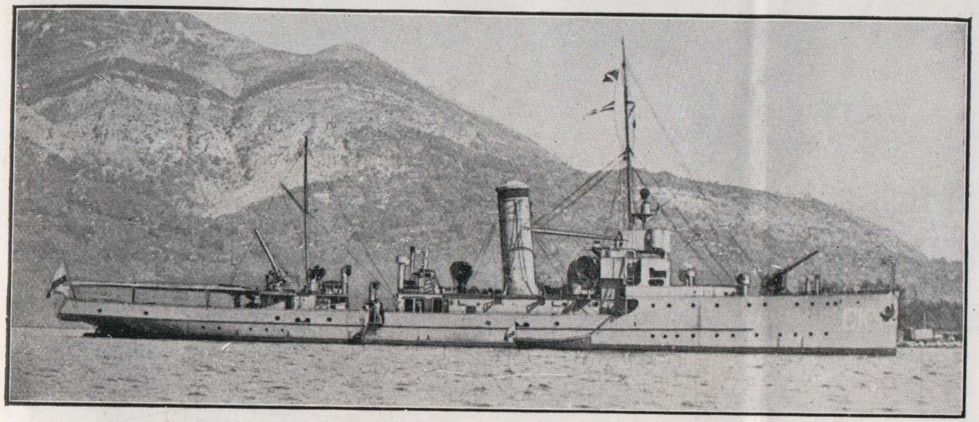
***Smeli*** (Dec. 1st, 1928), ***Osvetnik*** (Feb. 14th, 1929). Laid down at Nantes, 1927, by At. & Ch. de la Loire. Displ. 600/809 tons. 227 × 18 × 14 feet. H.P. $\frac{1440}{1000} = \frac{14\cdot5}{9}$ kts. Armament: **1**—4 inch Skoda, **1**—1 pdr. AA., 1 M.G.; 4 bow and 2 stern, 19·7 inch tubes. Complement, 43.

Names mean *Ardent* and *Vindictive.*

## Mine Layers (*Minonosci*).

(Appearance as Silhouette.)

5 boats: **MACLINSKA, MARJAN, MELJINE, MLJET, MOSOR** (1931. Yarrow's Adriatic Yard, Kralyevica). Displacement: 130 tons. Dimensions: 174 × 26¼ × 13 feet. Machinery: Triple expansion. H.P.: 280 = 9 kts. Guns: **1**—11 pdr.

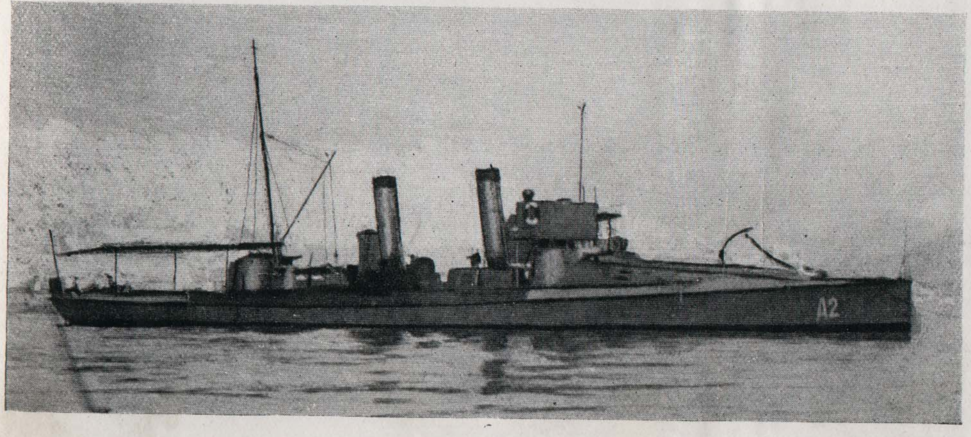


SOKOL. 1924 *Photo, by courtesy of the Navy Department.*

6 boats: **GALEB** (ex-*M* 100), **LABUD** (ex-*M* 106), **JASTREB** (ex-*M* 112), **KOBAC** (ex-*M* 121), **ORAO** (ex-*M* 97), **SOKOL** (ex-*M* 144) (1917–18). Displacement: 525 tons. Dimensions: 182 (*w.l.*), 192 (*o.a.*) × 23½ × 7 feet. Guns: **2**—3·9 inch AA., **4**—3 pdrs. Complement: 71. I.H.P.: 1,600 = 15 kts. Oil: 160 tons. Names mean *Seagull*, *Swan*, *Hawk*, *Sparrowhawk*, *Eagle* and *Falcon* respectively.

*Note.*—Identification letters painted on bows: **AO,** *Orao*; **JS,** *Jastreb*; **LB,** *Labud*; **KC,** *Kobac*; **CK,** *Sokol*; **ME,** *Meljine*; **MN,** *Marjan*; **MT,** *Mljet*; **MO,** *Mosot.*

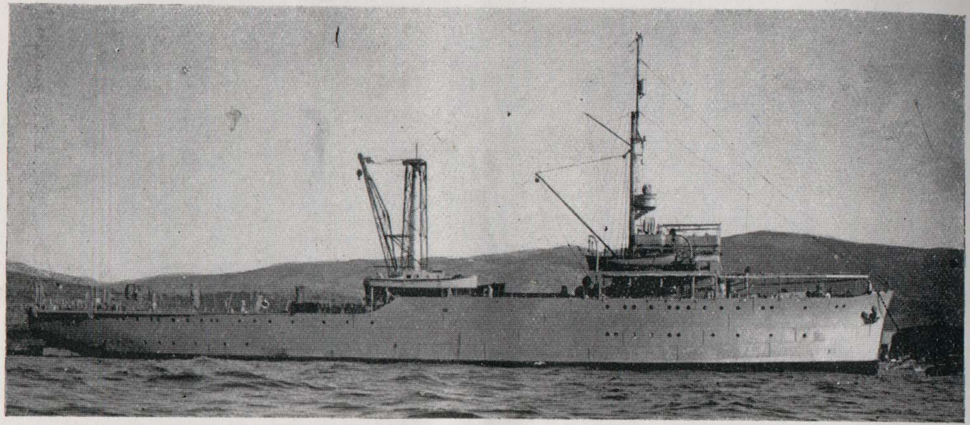
## Mine Sweeper (*Drager*).



D 2 1931 *Official Photo.*

**D 2** (ex-Austrian T.B., *No.* 36., 1886). Displacement: 78 tons. Dimensions: 128 × 14¾ × 3¼ feet. Guns: **2**—37 m/m. Triple expansion engines. H.P.: 900 = 17 kts. Complement: 16.

## Aircraft Tender.



1931 *Official Photo.*

**ZMAJ.** Built in 1928 by Deutsche Werft, Hamburg: burnt out and re-built in 1929-30. Displacement: 1,870 tons. Dimensions: 249⅓ × 42⅔ × 11½ feet. Guns: **1**—4 inch AA. Machinery: 2 compressorless M.A.N. Diesels each 1,630 H.P. 3,260 H.P. = 15 kts. 2 screws. 10 aircraft carried. (*Zmaj* means *Kite*).

## River Patrol Vessels.

**DRAGOR** (1928). Displacement: 250 tons. Dimensions: 164 × 26¼ × 3¾ feet. H.P.: 480 = 10 kts. Serves as Royal Yacht on Danube.

**CER** (1909). 256 tons. Dimensions: 170½ × 23 × 3 feet. 2 M.G. H.P.: 400 = 15 kts.

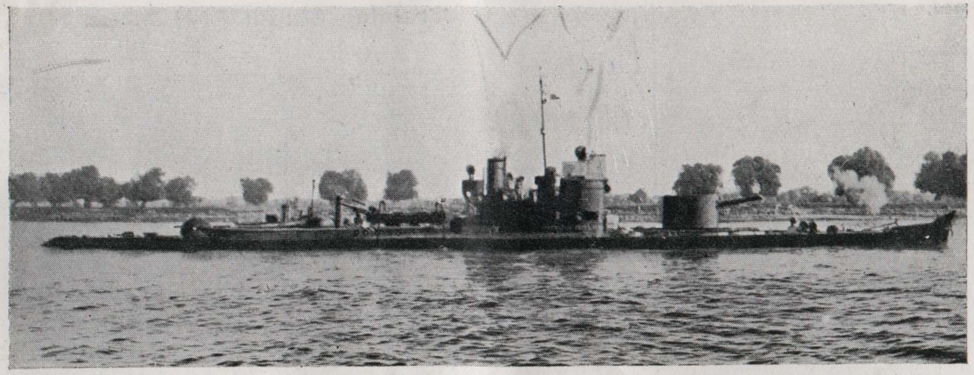
**TRIGLAV** (1915). 90 tons. Dimensions: 118 × 19½ × 6 feet. 2 M.G. H.P.: 350 = 11 kts.

**AVALA** (1914). 90 tons. Dimensions: 101¾ × 23 × 4½ feet. H.P.: 360 = 8 kts.

(Latter three vessels are converted tugs.)

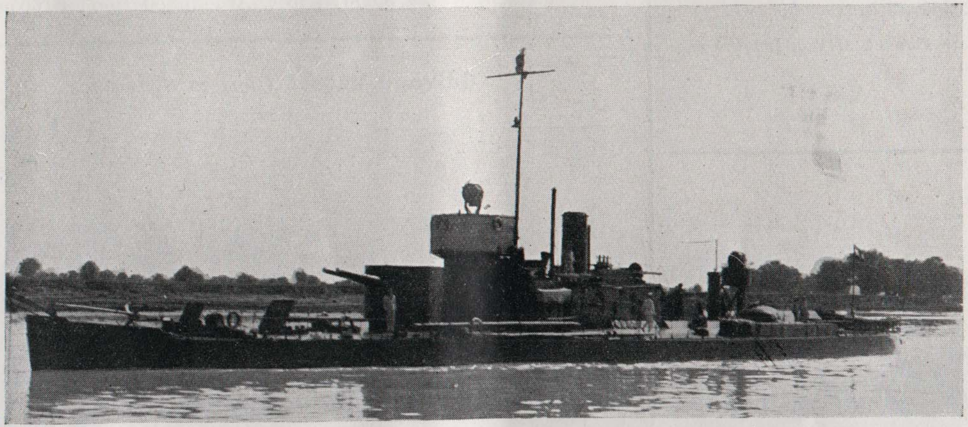
*Note.*—Two 36-ton motor vedette boats, speed 9 kts., are maintained on Lake Ohrid. Names are *Graničar* and *Stražar*. They were built in 1929.

## Danube Flotilla.—River Monitors.



1933 *Photo, Official.*

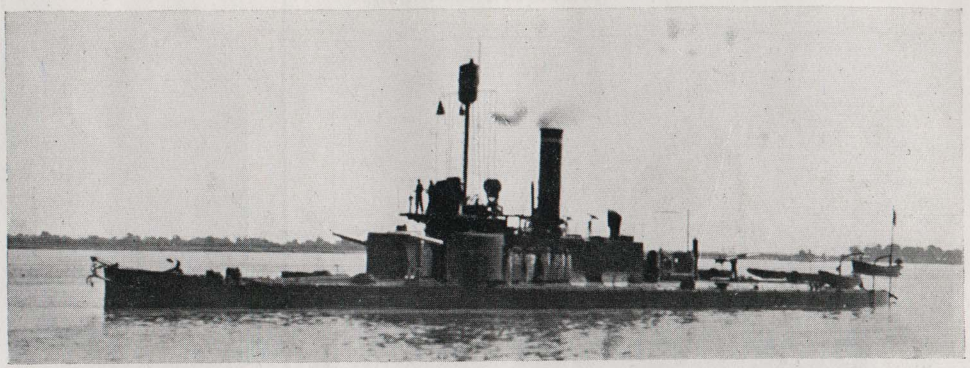
**VARDAR** (ex-Austrian *Bosna*. 1915). 530 tons. Dimensions: $200 \times 34\frac{1}{2} \times 4\frac{1}{4}$ feet. Guns: **2**—4·7 inch, 45 cal., **2**—4·7 inch, 10 cal. howitzers, **2**—66 mm. AA., **7** M.G. Armour: $1\frac{1}{2}$ inch belt and bulkheads, 1 inch deck, 2 inch C.T., 2 inch turrets and cupolas. H.P. 1,600 = 13 kts. Oil: 75 tons. Complement, 100. Sister to *Bucovina*, now in Roumanian Navy.



DRAVA. 1933 *Photo, by courtesy of the Navy Dept.*

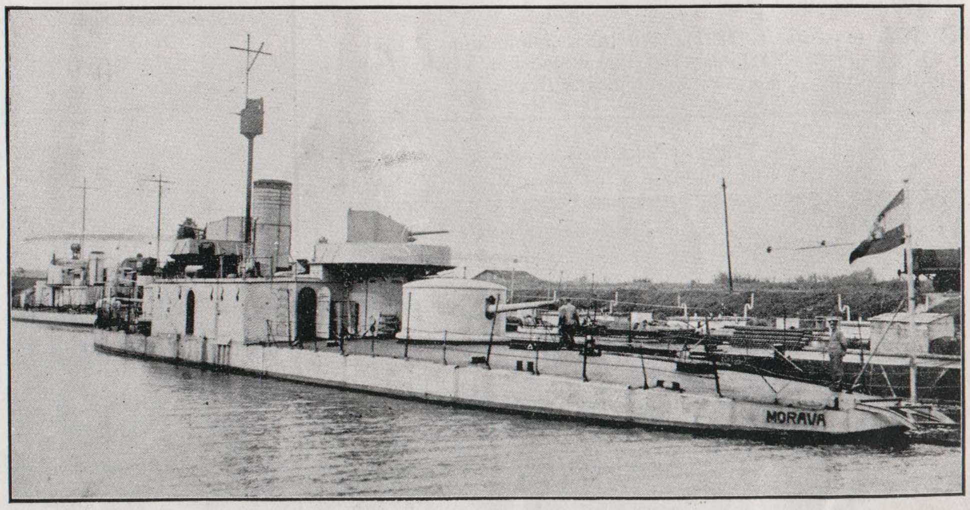
**DRAVA** (ex-Austrian *Enns*, 1913). 450 tons. Dimensions $190\frac{1}{4} \times 34\frac{1}{2} \times 4\frac{1}{4}$ feet. Guns: **2**—4·7 inch + **3**—4·7 inch howitzers, **2**—66 m/m., **7** M G. Armour: $1\frac{1}{2}''$ Belt and Bulkheads, 1″ Deck, 2″ C.T. and Turrets. Designed H.P. 1500 = 13 kts. Boilers: Yarrow. Fuel: Oil only, 70 tons. Complement, 86. Built under Austro-Hungarian 1912 Naval Programme; ceded to Yugoslavia 1920. Sister ship *Basarabia* now in Roumanian Navy.

## River Monitors—*continued.*



1933 *Photo, Official.*

**SAVA** (ex-Austrian *Bodrog*, Neupest, March, 1904). 380 tons.
Dimensions: $183\frac{3}{4} \times 31\frac{1}{4} \times 4$ feet. Designed H.P. 1,200 = 9 kts.
Boilers: Yarrow.
Armament: **2**—4·7 inch, 35 cal., **1**—4·7 inch howitzer, **2**—66 mm. AA., **2** M.G., **1** or **3** machine.
Armour: $1\frac{1}{2}''$ Belt and Bulkheads, 1″ Deck, $3''$—$1\frac{1}{2}''$ Turrets and Conning Tower.
Complement, 79. Coal: 62 tons.

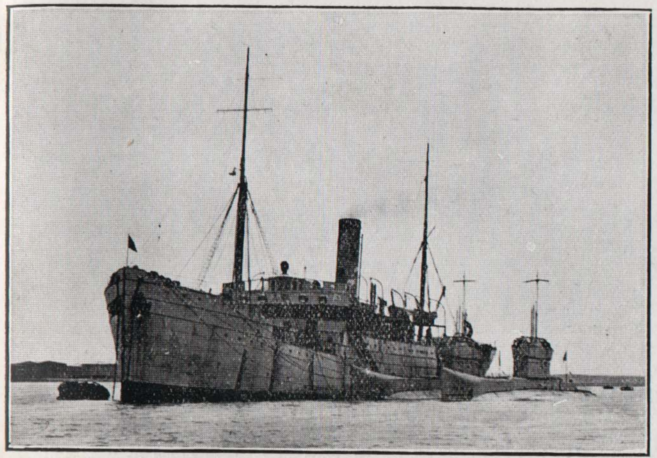


MORAVA. 1924 *Photo, by courtesy of the Navy Dept.*

Note overhanging rails at stern, for launching and hauling in boats.

**MORAVA** (ex-Austrian *Körös*, Budapest, 1892). 390 tons. Dimensions: $177\frac{1}{6} \times 29\frac{1}{2} \times 4$ feet. Designed H.P. 1200 = 9 kts. Boilers: Yarrow. Guns: **2**—4.7 inch (35 cal.), **2**—66 m/m. **2** M.G. Armour: 2″ Belt, $\frac{3}{4}''$ Deck, 3″ Turret, 2″ C.T. Complement, 79-80. Coal: 54 tons.

## Submarine Depot Ships (*Matica za Podmornice*).

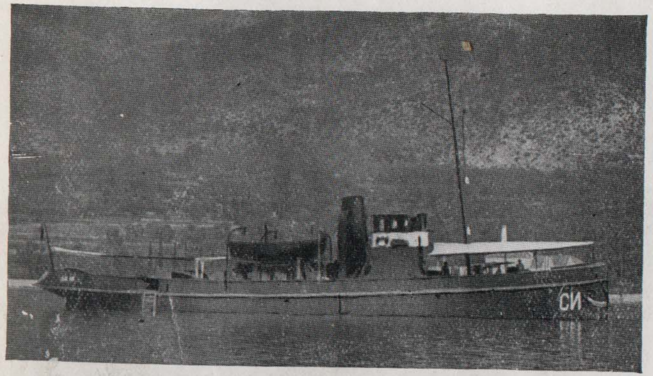


HVAR. 1928 *Photo.*

**HVAR** (ex-*Solun*, ex-*Umtali*). Sir Jas. Laing & Sons, Ltd., Sunderland, 1896 (Rebuilt 1927). 3,600 tons. Dimensions: 318¼ × 39 × 13 feet. Machinery: Triple expansion. H.P.: 1,100 = 12 kts.

**SITNICA** (ex-*Najade*, 1891). 370 tons. Dimensions: 157½ × 23 × 6½ feet. Machinery: Triple expansion. H.P.: 500 = 9 kts. Guns: 2—3 pdr. Name means *Dew*.

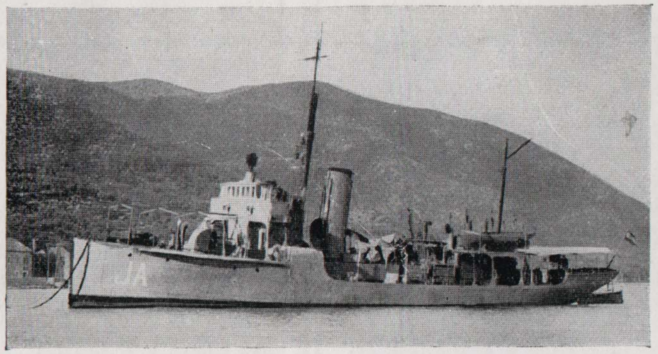
## Tugs (*Remorkeri*).



1931 *Official Photo.*

**SILNI** (1914). Displacement: 200 tons. Guns: 2—47 mm. H.P.: 670 = 10 kts. Name means *Powerful*.

## Tugs—*continued.*

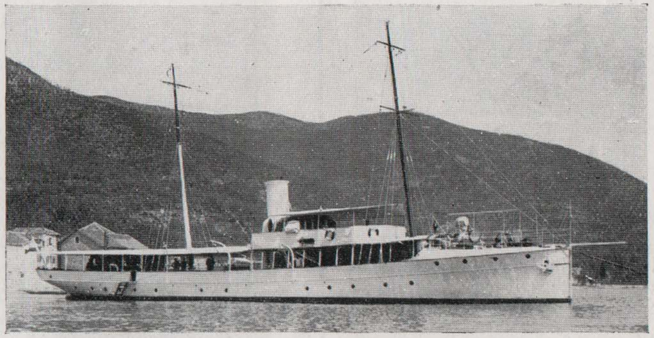


JAKI 1931 *Photo, Official.*

**JAKI** (1915). Displacement: 370 tons. H.P. 1,200 = 15 kts.
**MOCNI** (1889). 260 tons. H.P. 400 = 11 kts.
**MARLJIVI** (1898). 130 tons. H.P. 300 = 12 kts.
**SNAZNI** (1917). 100 tons. H.P. 300 = 10 kts.
**USTRAJNI** (1917). 160 tons. H.P. 250 = 9 kts.

*Note.*—Respective meanings of above names are *Forceful*, *Mighty*, *Industrious*, *Strong*, and *Durable*.

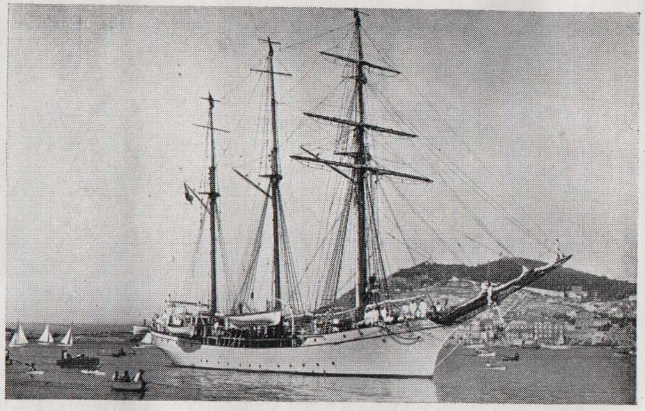
## Yacht (*Jahta*).



1931 *Photo, Official.*

**VILA** (ex-*Dalmata*) (1896). 230 tons. H.P. 325 = 12 kts. Name means *Nymph*.

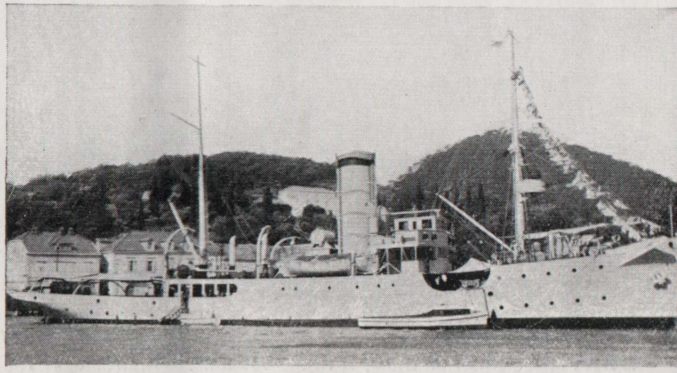
## Training Ship (*Skolski Brodovi*)



1933 *Photo, Official.*

**JADRAN** (1932). Displacement: 720 tons. Dimensions: 190¼ × 29 × — feet. One Linke-Hofmann Diesel. H.P.: 375 = 8 kts. Sail area, 8,600 sq. feet. Accommodation for 150 cadets.

## Salvage Vessel (*Brod za Spasavanje*).

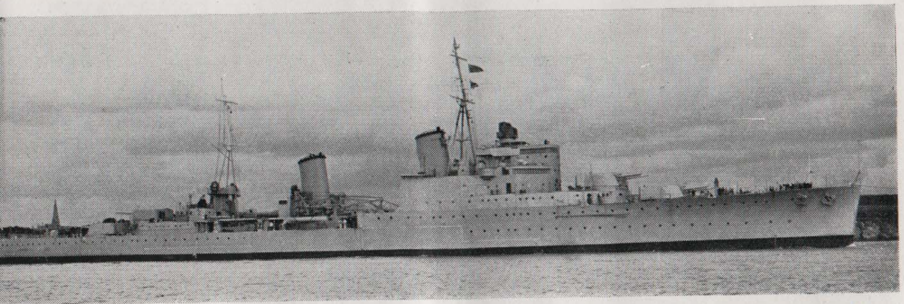


1936.

**SPASILAT** (1929). 740 tons. Dimensions: 174 × 26¼ × 13 feet. Machinery: Triple expansion. H.P.: 2,000 = 15 kts. Name means *Salvor*.

# ADDENDA

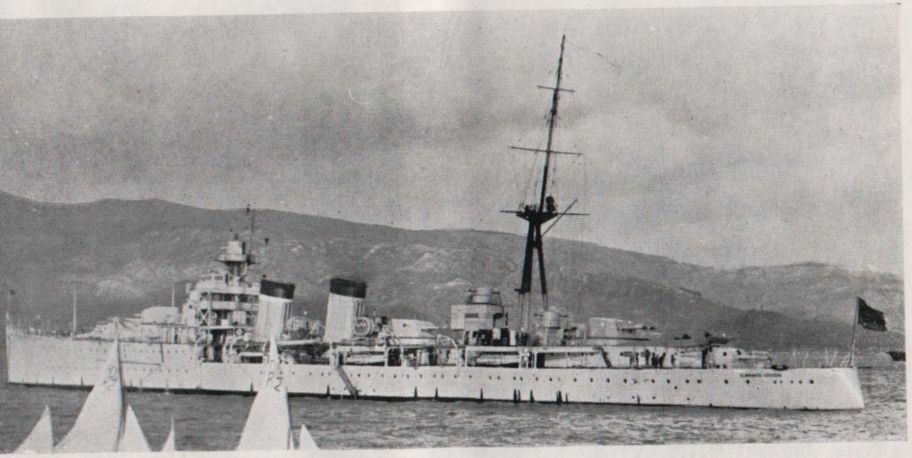
## BRITISH.



RMINGHAM (p. 46). 1937, "*Fighting Ships.*"

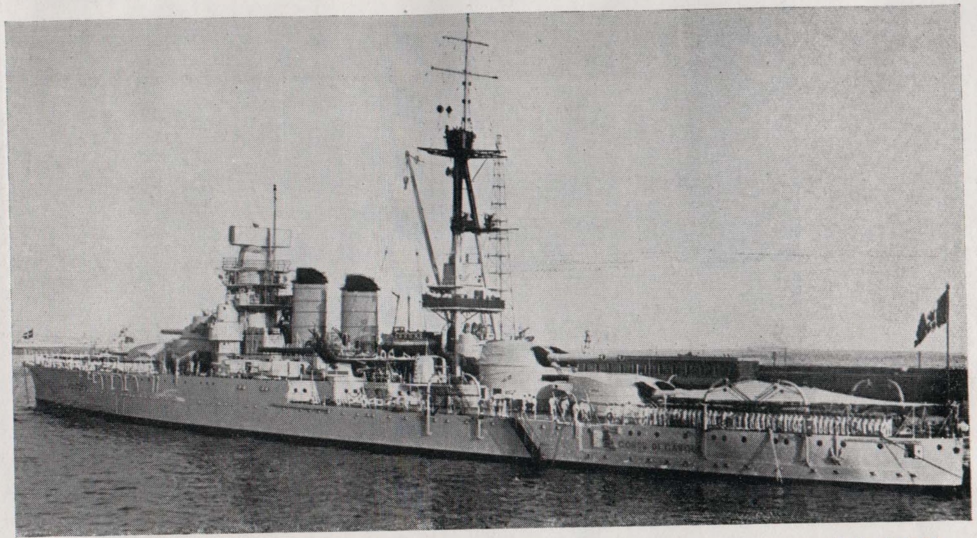
1. Submarine **TIGRIS** will be built at Chatham.

## SPANISH.

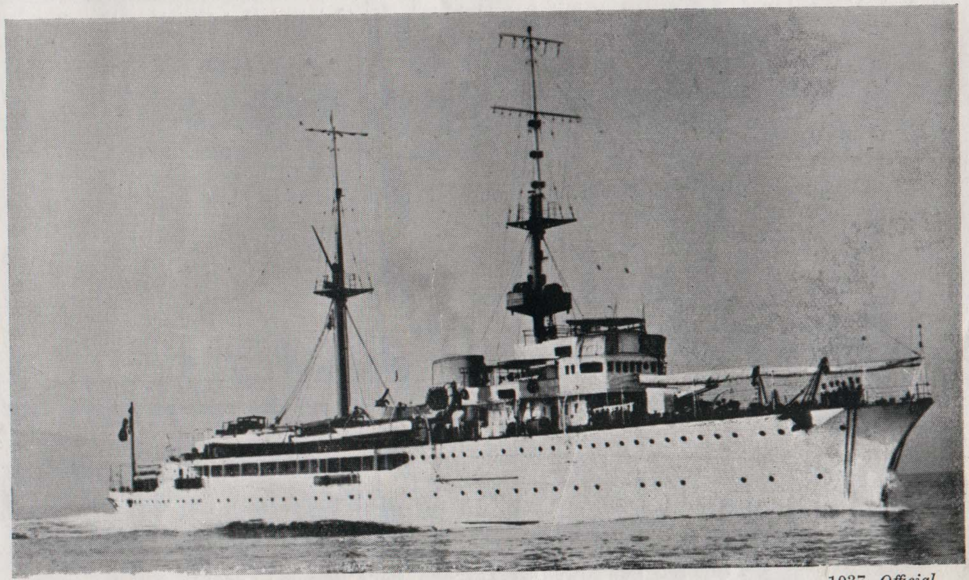


M. CERVERA (p. 442). 1937, *R. C. Vowels, Esq.*

## ITALIAN.



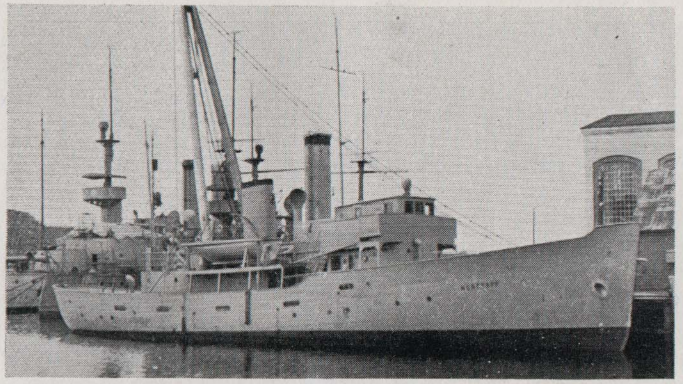
CAVOUR (p. 266). 1937, *Official.*



ERITREA (p. 276). 1937, *Official.*

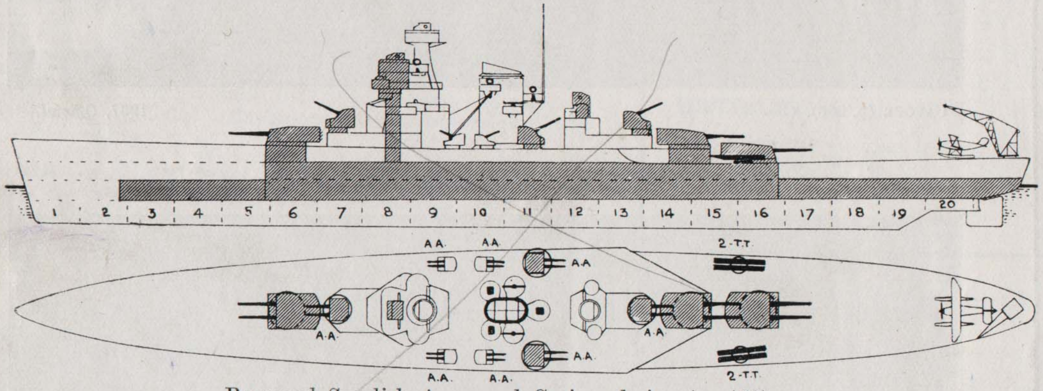
# ADDENDA—*continued.*

## NORWEGIAN.



NORDKAPP (p. 385). 1937 *Official.*

## SWEDISH.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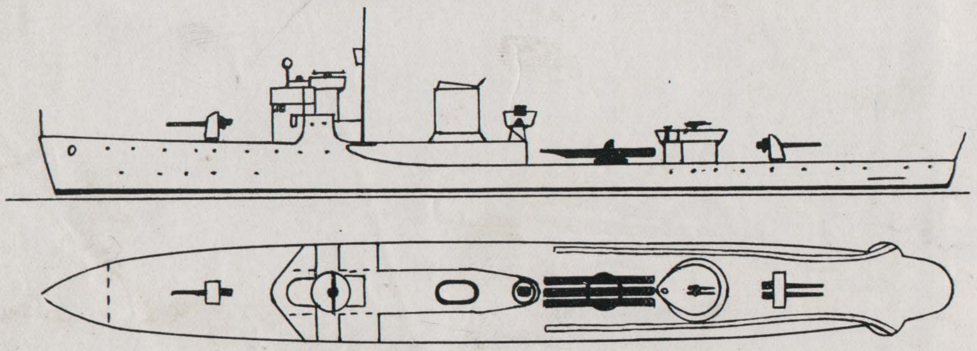
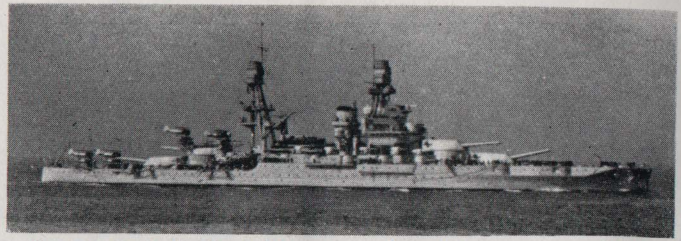
Proposed Swedish Armoured Cruiser design (p. 450).

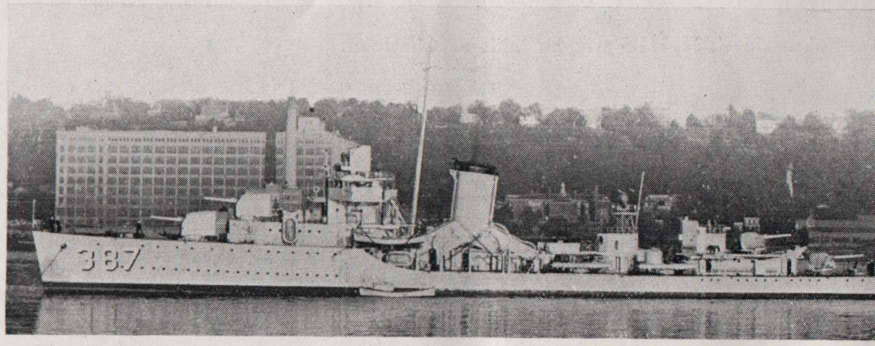


Proposed new Swedish Torpedo Boat design (p. 450).

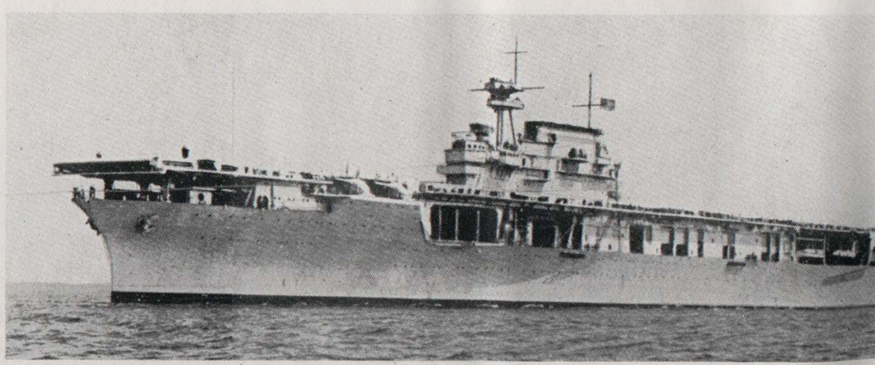
## U.S.A.



PENNSYLVANIA, showing heightened funnel (p. 485). 1937.



BLUE (p. 502). 1937, *courtesy* "*Our*



YORKTOWN (p. 490). 1937, *courtesy* "*Our*

River Gunboat **PANAY** reported sunk in the Yangtse December 11th, 1937.